# BODY BUILDER MANUAL

FOR

# 2017 CHEVROLET SILVERADO/GMC SIERRA
# ELECTRICAL SECTION

*Revision 1.0* *www.gmupfitter.com* *October 25, 2016*

GM UPFITTER INTEGRATION

Note to User:
As part of our mission to provide an up-to-date website that includes detailed Body Builder Manuals, Technical Bulletins, and Best Practice Manuals, we are now using sectional excerpts directly from the General Motors Service Information publications for our Electrical Body Builder Manuals.

You will note that the section numbers are non-sequential as we have provided only those that are believed to be the most pertinent to the Upfitter community and best suited to their needs.*

This new usage of the Service Information provides the opportunity for us to remain consistent with the changes that take place throughout the model year and to provide you updated information in a more timely fashion.

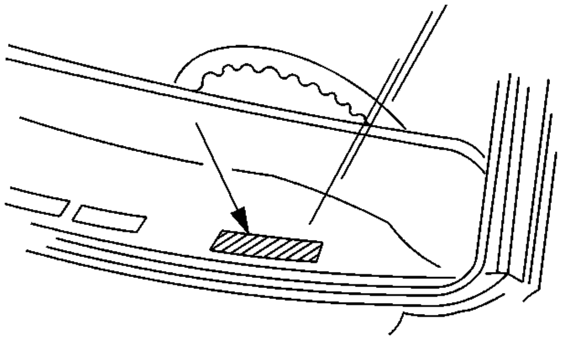
**** If you would like to have access to all of the electrical Service Information, please apply for a subscription from ACDelco at http://acdelcotechconnect.com/html/tss_tech_esi.jsp***

# General Information

## General Information

### Introduction

#### Vehicle, Engine and Transmission ID and VIN Location, Derivative and Usage (GMC)



The vehicle identification number (VIN) plate is the legal identifier of the vehicle. The VIN plate is located on the upper left corner of the instrument panel. The VIN number can be seen through the windshield from the outside of the vehicle:

#### *Vehicle Identification Number (VIN) System*

| Position | Definition | Character | Description |
|---|---|---|---|
| 1 | Country of Origin | 1 | United States |
| | | 3 | Mexico |
| 2 | Manufacturer | G | General Motors |
| 3 | Make | D | GMC Incomplete |
| | | T | GMC Truck |
| 4 | GVWR/Brake System/Body Style | N | 6,001–7,000 lbs/Hydraulic/Standard Cab |
| | | P | 6,001–7,000 lbs/Hydraulic/Crew Cab |
| | | R | 6,001–7,000 lbs/Hydraulic/Extended Cab |
| | | U | 7,001–8,000 lbs/Hydraulic/Crew Cab |
| | | V | 7,001–8,000 lbs/Hydraulic/Extended Cab |
| | | 0 | 9,001–10,000 lbs/Hydraulic/Standard Cab |
| | | 1 | 9,001–10,000 lbs/Hydraulic/Crew Cab |
| | | 2 | 9,001–10,000 lbs/Hydraulic/Extended Cab |
| | | 3 | 10,001–14,000 lbs/Hydraulic/Standard Cab |
| | | 4 | 10,001–14,000 lbs/Hydraulic/Crew Cab |

|  |  |  |  |
|---|---|---|---|
|  |  | 5 | 10,001–14,000 lbs/Hydraulic/Extended Cab |
| 5 | Line Chassis | C | 4x2 |
|  |  | 1 |  |
|  |  | K | 4x4 |
|  |  | 2 |  |
| 6 | Series | L | 1500 GMC Sierra Fleet/Base |
|  |  | M | 1500 GMC Sierra SLE |
|  |  | N | 1500 GMC Sierra SLT |
|  |  | P | 1500 GMC Sierra Denali |
|  |  | R | 2500 GMC Sierra Fleet/Base |
|  |  | S | 2500 GMC Sierra SLE |
|  |  | T | 2500 GMC Sierra SLT |
|  |  | U | 2500 GMC Sierra Denali |
|  |  | V | 3500 GMC Sierra Fleet/Base |
|  |  | W | 3500 GMC Sierra SLE |
|  |  | X | 3500 GMC Sierra SLT |
|  |  | Y | 3500 GMC Sierra Denali |
|  |  | 9 | GMC Sierra, (Non-US, Non-Canada) |
| 7 | Restraint System | C | Active Manual Belts, Airbag – Driver and Passenger – Front (1st row) |
|  |  | E | Active Manual Belts, Airbags – Driver and Passenger – Front (1st row), Front Seat Side (1st row), Roof Side (all seating rows) |
| 8 | Engine Type | B | RPO LC8, Engine Flexible Fuel, (CNG/LGP), 8 Cyl, V8,6.0L, SFI |
|  |  | C | RPO L83, Engine Gas, 8 Cylinder, 5.3L, SIDI VVT, AFM, E85 MAX, Aluminum |
|  |  | G | RPO L96, Engine Flexible Fuel, (Gas/Ethanol), 8 Cylinder, 6.0L, SFI, Iron |
|  |  | H | RPO LV3. Engine Gas, 6 Cylinder, 4.3L, SIDI, V6, VVT, OHV, E85 MAX, Aluminum |
|  |  | J | RPO L86, Engine Gas, 8 Cylinder, 6.2L, SIDI VVT, AFM, E85 MAX, Aluminum |
|  |  | P | RPO LV1, Engine Gas, 6 Cylinder, 4.3L, SIDI, V6, VVT, E85 MAX, Iron |
| 9 | Check Digit | — | Check Digit |

| | | | |
|---|---|---|---|
| 10 | Model Year | H | 2017 |
| 11 | Plant Location | F | Flint, Michigan, USA |
| | | Z | Fort Wayne, Indiana, USA |
| | | G | Silao, Mexico |
| 12–17 | Plant Sequence Number | — | Plant Sequence Number |

### 4.3L (LV1 LV3) Engine ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 226538) is invalid for this publication..

### 5.3L (L83 L8B) or 6.2L (L86) Engine ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 225900) is invalid for this publication..

### 6.0L (L96) (LC8) Engine ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 225900) is invalid for this publication..

### 6.6L (L5P) Engine ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 203626) is invalid for this publication..

### 6L80 (MYC) or 6L90 (MYD) Transmission ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 135940) is invalid for this publication..

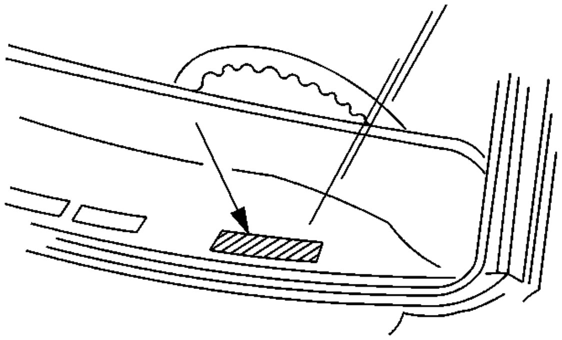
### 8L90 (M5U M5X) Transmission ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 260620) is invalid for this publication..

### Allison (MW7) Transmission ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 7876) is invalid for this publication..

## Vehicle, Engine and Transmission ID and VIN Location, Derivative and Usage (Chevrolet)



The vehicle identification number (VIN) plate is the legal identifier of the vehicle. The VIN plate is located on the upper left corner of the instrument panel. The VIN number can be seen through the windshield from the outside of the vehicle:

### *Vehicle Identification Number (VIN) System*

| Position | Definition | Character | Description |
|---|---|---|---|
| 1 | Country of Origin | 1 | United States |
| | | 3 | Mexico |
| 2 | Manufacturer | G | General Motors |
| 3 | Make | B | Chevrolet Incomplete Truck |
| | | C | Chevrolet Truck |
| 4 | GVWR/Brake System/Body Style | N | 6,001–7,000 lbs/Hydraulic/Standard Cab |
| | | P | 6,001–7,000 lbs/Hydraulic/Crew Cab |
| | | R | 6,001–7,000 lbs/Hydraulic/Extended Cab |
| | | U | 7,001–8,000 lbs/Hydraulic/Crew Cab |
| | | V | 7,001–8,000 lbs/Hydraulic/Extended Cab |
| | | 0 | 9,001–10,000 lbs/Hydraulic/Standard Cab |
| | | 1 | 9,001–10,000 lbs/Hydraulic/Crew Cab |
| | | 2 | 9,001–10,000 lbs/Hydraulic/Extended Cab |
| | | 3 | 10,001–14,000 lbs/Hydraulic/Standard Cab |
| | | 4 | 10,001–14,000 lbs/Hydraulic/Crew Cab |
| | | 5 | 10,001–14,000 lbs/Hydraulic/Extended Cab |
| 5 | Line Chassis | C | 4x2 |
| | | 1 | |

|  |  |  |  |
|---|---|---|---|
|  |  | K | 4x4 |
|  |  | 2 |  |
|  |  | N | 1500 Chevrolet Silverado, Work Truck/LS/Fleet/Base |
|  |  | P | 1500 Chevrolet Silverado, Custom |
|  |  | R | 1500 Chevrolet Silverado, LT |
|  |  | S | 1500 Chevrolet Silverado, LTZ |
|  |  | T | 1500 Chevrolet Silverado, High Country |
|  |  | U | 2500 Chevrolet Silverado, Work Truck/Fleet/Base |
|  |  | V | 2500 Chevrolet Silverado, LT |
|  |  | W | 2500 Chevrolet Silverado, LTZ |
|  |  | X | 2500 Chevrolet Silverado, High Country |
|  |  | Y | 3500 Chevrolet Silverado, Work Truck/Fleet/Base |
|  |  | Z | 3500 Chevrolet Silverado, LT |
|  |  | 0 | 3500 Chevrolet Silverado, LTZ |
|  |  | 1 | 3500 Chevrolet Silverado, High Country |
|  |  | 9 | Chevrolet Silverado, (Non-US, Non-Canada) |
| 7 | Restraint System | C | Active Manual Belts, Airbag – Driver and Passenger – Front (1st row) |
|  |  | E | Active Manual Belts, Airbags – Driver and Passenger – Front (1st row), Front Seat Side (1st row), Roof Side (all seating rows) |
| 8 | Engine Type | B | RPO LC8, Engine Flexible Fuel, (CNG/LGP), 8 Cyl, V8,6.0L, SFI |
|  |  | C | RPO L83, Engine Gas, 8 Cylinder, 5.3L, SIDI VVT, AFM, E85 MAX, Aluminum |
|  |  | G | RPO L96, Engine Flexible Fuel, (Gas/Ethanol), 8 Cylinder, 6.0L, SFI, Iron |
|  |  | H | RPO LV3. Engine Gas, 6 Cylinder, 4.3L, SIDI, V6, VVT, OHV, E85 MAX, Aluminum |
|  |  | J | RPO L86, Engine Gas, 8 Cylinder, 6.2L, SIDI VVT, AFM, E85 MAX, Aluminum |
|  |  | P | RPO LV1, Engine Gas, 6 Cylinder, 4.3L, SIDI, V6, VVT, E85 MAX, Iron |
| 9 | Check Digit | — | Check Digit |
| 10 | Model Year | H | 2017 |
| 11 | Plant Location | F | Flint, Michigan, USA |

| | | | |
|---|---|---|---|
| | | Z | Fort Wayne, Indiana, USA |
| | | G | Silao, Mexico |
| 12–17 | Plant Sequence Number | — | Plant Sequence Number |

### 4.3L (LV1 LV3) Engine ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 226538) is invalid for this publication..

### 5.3L (L83 L8B) or 6.2L (L86) Engine ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 225900) is invalid for this publication..

### 6.0L (L96) (LC8) Engine ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 225900) is invalid for this publication..

### 6.6L (L5P) Engine ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 203626) is invalid for this publication..

### 6L80 (MYC) or 6L90 (MYD) Transmission ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 135940) is invalid for this publication..

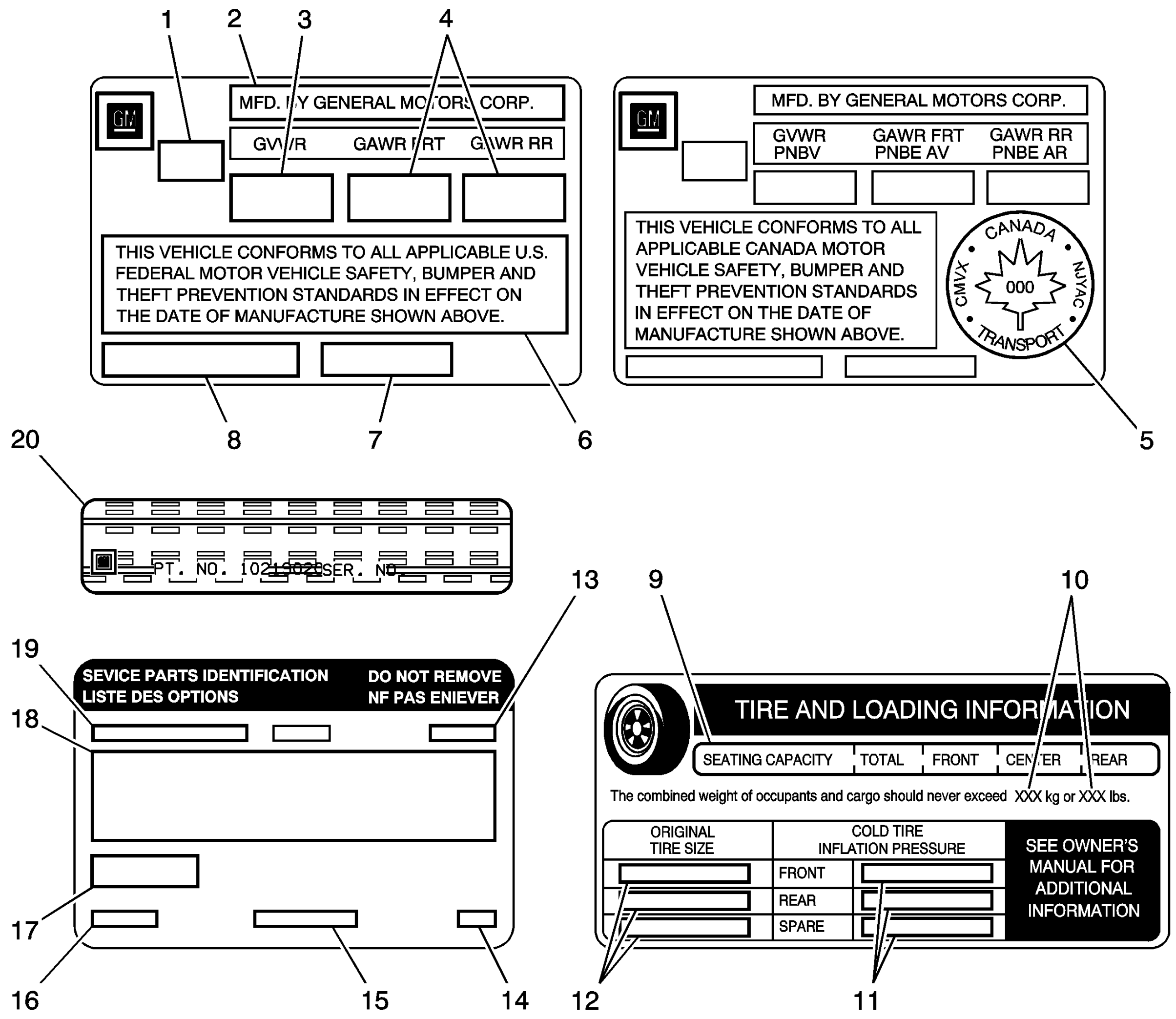
### 8L90 (M5U M5X) Transmission ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 260620) is invalid for this publication..

### Allison (MW7) Transmission ID and VIN Derivative Location

Refer to CELL Link Error - Link target cell (cell ID 7876) is invalid for this publication..

## Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label


1
2
3
4
MFD. BY GENERAL MOTORS CORP.
GVWR
GAWR FRT
GAWR RR
THIS VEHICLE CONFORMS TO ALL APPLICABLE U.S. FEDERAL MOTOR VEHICLE SAFETY, BUMPER AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
MFD. BY GENERAL MOTORS CORP.
GVWR PNBV
GAWR FRT PNBE AV
GAWR RR PNBE AR
THIS VEHICLE CONFORMS TO ALL APPLICABLE CANADA MOTOR VEHICLE SAFETY, BUMPER AND THEFT PREVENTION STANDARDS IN EFFECT ON THE DATE OF MANUFACTURE SHOWN ABOVE.
CANADA
NJYAC
TRANSPORT
CMVX
000
20
8
7
6
5
PT. NO. 10219026
SER. NO
13
9
10
19
SEVICE PARTS IDENTIFICATION
LISTE DES OPTIONS
DO NOT REMOVE
NF PAS ENIEVER
18
TIRE AND LOADING INFORMATION
SEATING CAPACITY
TOTAL
FRONT
CENTER
REAR
The combined weight of occupants and cargo should never exceed XXX kg or XXX lbs.
ORIGINAL TIRE SIZE
COLD TIRE INFLATION PRESSURE
FRONT
REAR
SPARE
SEE OWNER'S MANUAL FOR ADDITIONAL INFORMATION
17
16
15
14
12
11

### *Vehicle Certification, Tire Placard, Anti-Theft, and Service Parts ID Label*

| Callouts | Description |
|---|---|
| | **Vehicle Certification Label**<br>The vehicle certification label is located on the driver door and displays the following assessments:<br>• Gross Vehicle Weight Rating (GVWR)<br>• Gross Axle Weight Rating (GAWR), front and rear<br>• The gross vehicle weight (GVW) is the weight of the vehicle and everything it carries. The gross vehicle weight must not exceed the GVWR. Include the following items when figuring the GVW:<br>– The base vehicle weight (factory weight)<br>– The weight of all vehicle accessories<br>– The weight of the driver and the passengers<br>– The weight of the cargo |
| 1 | Name of Manufacturer |
| 2 | Gross Vehicle Weight Rating |
| 3 | Gross Axle Weight Rating (Front, Rear) |
| 4 | Canadian Safety Mark (w/RPO Z49) |

| | |
|---|---|
| 5 | Certification Statement |
| 6 | Vehicle Class Type (Pass Car, etc.) |
| 7 | Vehicle Identification Number |
| 8 | Date of Manufacture (Mo/Yr) |
| **Tire Placard**<br>The tire placard label is located on the driver side B pillar and displays the following assessments: | |
| 9 | Specified Occupant Seating Positions |
| 10 | Maximum Vehicle Capacity Weight |
| 11 | Tire Pressure, Front, Rear, and Spare (Cold) |
| 12 | Original Equipment Tire Size |
| **Service Parts ID Label**<br>The vehicle service parts identification label is located in the instrument panel (I/P) compartment. The label is use to help identify the vehicle original parts and options. | |
| 13 | Vehicle Identification Number |
| 14 | Engineering Model Number (Vehicle Division, Line and Body Style) |
| 15 | Interior Trim Level and Decor |
| 16 | Exterior (Paint Color) WA Number |
| 17 | Paint Technology |
| 18 | Special Order Paint Colors and Numbers |
| 19 | Vehicle Option Content |
| **Anti-Theft Label** | |
| 20 | The Federal law requires that General Motors label certain body parts on this vehicle with the VIN. The purpose of the law is to reduce the number of motor vehicle thefts by helping in the tracing and recovery of parts from stolen vehicles.<br>Labels are permanently affixed to an interior surface of the part. The label on the replacement part contains the letter R, the manufacturer's logo, and the DOT symbol.<br>The anti-theft label must be covered before any painting, and rustproofing procedures, and uncovered after the procedures. Failure to follow the precautionary steps may result in liability for violation of the Federal Vehicle Theft Prevention Standard and possible suspicion to the owner that the part was stolen. |

## *RPO Code List*

| RPO | Description |
|---|---|
| The production/process codes provide the description of the Regular Production Options (RPOs). The RPO list is printed on the Service Parts Identification Label. | |
| 01U | PRIMARY COLOR-EXTERIOR, SPECIAL (02) |
| 1LR | MODIFICATION-BRAKE SYSTEM, OPTIONAL LININGS |
| 4AA | INTERIOR TRIM-JET BLACK |
| 4B8 | INTERIOR TRIM-COCOA / SHALE |
| 4D7 | INTERIOR TRIM-JET BLACK/DK ASH |
| 4DP | INTERIOR TRIM-COCOA / DUNE |
| 4ER | INTERIOR TRIM-JET BLACK / VECCHIO |
| 4EX | INTERIOR TRIM-MINK |
| 4EY | INTERIOR TRIM-COCOA / PILLION BROWN SAUVAGE |
| 4EZ | INTERIOR TRIM-COCOA / DARK ATMOSPHERE |
| 4FP | INTERIOR TRIM-PLATINUM JET BLACK |
| 4FQ | INTERIOR TRIM-CHOOCCACHINO |
| 4GB | INTERIOR TRIM-JET BLACK/ COBALT RED |
| 4H9 | INTERIOR TRIM-COCOA / MAPLE SUGAR |
| 4HZ | INTERIOR TRIM-JET BLACK/MEDIUM ASH GRAY |
| 5A7 | WHEEL SPARE-NONE |
| 5AZ | ACCESSORY-SAFETY KIT - UNIVERSAL |
| 5JL | ACCESSORY-BRAKE UPGRADE PKG 1 - COMPLETE |
| 5JR | ACCESSORY-MIRROR COVERS - ALTERNATE FINISH 1 |
| 5JY | ACCESSORY-TONNEAU - RR COMPT - SOFT FOLDING |
| 5KW | ACCESSORY-EXTERIOR APPEARANCE PACKAGE 2 |
| 5KY | ACCESSORY-EXTERIOR APPEARANCE PACKAGE 4 |
| 5L6 | EQUIPMENT-PACKAGE, SPECIAL FLEET |

| | |
|---|---|
| 5VD | ACCESSORY-PROTECTOR - FRONT BUMPER |
| 5VI | ACCESSORY-TIE DOWN RINGS - CARGO AREA |
| 5W4 | SALES PACKAGE-SPECIAL SERVICE, MUNICIPAL |
| 5W7 | ACCESSORY-AIR FILTER - PERFORMANCE |
| 5WI | ACCESSORY-TIE DOWN RINGS - CARGO AREA, MOVEABLE |
| 5Y3 | ACCESSORY-TOW BALL - TRAILER HITCH |
| 9C1 | SALES PACKAGE-POLICE VEHICLE |
| 9G3 | SALES PACKAGE-"OFF ROAD" |
| 9J4 | BUMPER RR-(NONE) |
| 9L3 | TIRE SPARE-NONE |
| 9L7 | EQUIPMENT-ACSRY WRG JUNC BLK |
| A31 | WINDOW-POWER OPERATED, ALL DOORS (DO NOT USE ON NEW/MAJOR PROGRAMS) |
| A45 | MEMORY-SEAT ADJUSTER, MIRROR, POWER, DRIVER, PERSONALIZATION |
| A48 | WINDOW RR-FULL WIDTH, SLIDING, POWER |
| A4M | SALES PROCESSING OPT-#3 |
| A52 | SEAT-FRT BENCH |
| A60 | LOCK CONTROL RR CMPT-LID, TAILGATE, KEY ACTIVATED |
| A68 | SEAT RR-SPLIT, FOLDING |
| A91 | LOCK CONTROL RR CMPT-TAILGATE, REM CONT ELEC OPEN/CLOSE |
| A95 | SEAT-FRT BKT, HIGH BACK, DRIVER & PASS RECL |
| AAK | ACCESSORY-FLOOR LINER - CONTOURED - ALT DESIGN 1 |
| ACO | IDENTIFICATION-ACCESSORY CATALOG OFFERING |
| AE7 | SEAT-FRT SPLIT, DRIVER, PASS |
| AG1 | ADJUSTER FRT ST-POWER, MULTI-DIRECTIONAL, DRIVER |
| AG2 | ADJUSTER PASS ST-POWER, MULTI-DIRECTIONAL |
| AK5 | RESTRAINT SYSTEM-SEAT, INFLATABLE, DRIVER & PASS FRT |

| | |
|---|---|
| AKJ | WINDSHIELD STYLE-SHADE BAND |
| AKK | WINDSHIELD STYLE-ACOUSTIC PVB |
| AKO | WINDOW TYPE-PRIVACY |
| AKP | WINDOW TYPE-SOLAR ABSORBING |
| AKX | WINDSHIELD TYPE-SOLAR ABSORBING |
| AL0 | SENSOR INDICATOR-INFLATABLE RESTRAINT, FRT PASS/CHILD PRESENCE DETECTOR |
| AM7 | SEAT RR-FOLDING |
| AMF | LOCK CONTROL-ADDITIONAL, PROGRAMMABLE, REMOTE ENTRY, MULTIPLE UNITS |
| AN3 | SEAT-FRT, INDIVIDUAL (NON BKT) |
| AP9 | NET-CONVENIENCE |
| AQC | ORNAMENTATION-EXTR, BODY COLOR |
| AQQ | LOCK CONTROL, ENTRY-REMOTE ENTRY, EXTENDED RANGE (MY 09 AND FUTURE) |
| ARL | PLANT CODE-ARLINGTON, TX, USA |
| ARN | SEAT THIRD ROW-60/40 BENCH, MAN FOLD |
| AS8 | SEAT THIRD ROW-60/40 BENCH, POWER FOLD |
| AT6 | SEAT RR-BENCH, 60/40 MANUAL CONFIGURABLE |
| ATD | SEAT THIRD ROW-NONE |
| ATH | LOCK CONTROL, ENTRY-REMOTE ENTRY, EXTENDED RANGE, PASSIVE ENTRY, ALL DOORS |
| ATN | SEAT RR-BUCKET, POWER CONFIGURABLE |
| ATT | SEAT RR-BENCH, 60/40 POWER CONFIGURABLE |
| ATV | SEAT RR-BUCKET, MANUAL CONFIGURABLE |
| AU3 | LOCK CONTROL-SIDE DR, ELEC |
| AX4 | RESTRAINT CONVERSION-SEAT, MAN, EUROPEAN |
| AX7 | RESTRAINT PROVISIONS-AUTOMATIC BELTS, PRE-CRASH, PRE-TIGHTENING |
| AXK | VEHICLE TYPE-TRUCK |
| AXP | VEHICLE TYPE-MULTI-PURPOSE PASSENGER VEHICLE |

| | |
|---|---|
| AXX | VEHICLE TYPE-VEHICLE TYPE - NOT REQUIRED DO NOT USE |
| AY0 | RESTRAINT SYSTEM-SEAT, INFLATABLE, DRIVER & PASS FRT, SEAT SIDE, ROOF SIDE |
| AYE | RESTRAINT-HEAD, RR SEAT, ANILINE LEATHER (WITH DVD) (DO NOT USE AFTER M.Y. 2016) |
| AYQ | RESTRAINT SYSTEM-SEAT, INFLATABLE, DRIVER & PASS FRT, FRT SEAT SIDE, FRT INBOARD SEAT SIDE, ROOF SIDE |
| AZ3 | SEAT-FRT SPLIT, DRIVER, PASS, FULL FEATURE CENTER |
| B1J | LINER-RR WHEELHOUSE |
| B1R | PORT OF ENTRY-UNISON, BELARUS |
| B30 | COVERING FLOOR-CARPET |
| B32 | COVERING FRT-FLOOR MATS, AUX |
| B33 | COVERING REAR-FLOOR MATS, AUX |
| B3F | SEAT-FRT SPLIT, DELUXE, DRIVER, PASS, FULL FEATURE CENTER |
| B3V | TEST-EXTENDED WATER |
| B58 | COVERING-FLOOR MAT, FRT & RR, CARPETED INSERT |
| B5N | COVERING-FLOOR MAT, FRT & RR, RUBBER |
| B85 | MOLDING B/S-EXTERIOR, BRIGHT |
| B86 | MOLDING B/S-BODY COLOR |
| BAG | PARTS PKG-EXPORT |
| BG9 | COVERING FLOOR-RUBBER |
| BJA | PARTS PKG-TRUCK APPLICATION VAR.1 |
| BPH | APPEARANCE PACKAGE-CHEVROLET "OFF ROAD" |
| BRS | STEPS, RUNNINGBOARD-SIDE, RETRACTABLE, POWER |
| BTM | SWITCH-ENGINE START, KEYLESS |
| BTV | REMOTE START-ENGINE |
| BVE | STEPS, RUNNINGBOARD-SIDE |
| BVQ | STEPS, RUNNINGBOARD-SIDE, TUBULAR, CHROME |
| BVV | STEPS, RUNNINGBOARD-SIDE, TUBULAR, BLACK |

| | |
|---|---|
| BWN | STEPS-CORNER ASSIST, BUMPER |
| C25 | WIPER SYS RR WINDOW-INTERMITTENT |
| C42 | HVAC SYSTEM-HEATER, OUTSIDE AIR, DELUXE |
| C49 | DEFOGGER-RR WINDOW, ELECTRIC |
| C67 | HVAC SYSTEM-AIR CONDITIONER FRT, ELECTRONIC CONTROLS |
| C99 | SWITCH-INFL RST I/P MDL MAN SUPPRESSION |
| C9I | SWITCH-ROLL OVER SENSING |
| CE1 | WIPER SYS WINDSHIELD-PULSE, MOISTURE SENSITIVE |
| CF5 | ROOF-SUN, GLASS, SLIDING, ELEC |
| CG6 | ORNAMENTATION-EXTR, NAMEPLATE, VAR 1 |
| CGN | LINER-PUBX, SPRAY ON |
| CGO | COLLECTION GVW-COLLECTION GVW LESS THAN OR EQUAL TO 10,000 LBS |
| CJ2 | HVAC SYSTEM-AIR CONDITIONER FRT, AUTO TEMP CONT, AUX TEMP CONT |
| CJ4 | HVAC SYSTEM-AIR CONDITIONING, FRT & RR ELECTRONIC CONTROLS |
| CK4 | COUNTRY-GREECE |
| CL5 | COUNTRY-PERU |
| CL6 | COUNTRY-BOLIVIA |
| CMD | PLANT CODE-FLINT, MI, USA (TRK) |
| CS0 | COUNTRY-CZECH REPUBLIC |
| CS2 | COUNTRY-NIGERIA |
| CS5 | COUNTRY-ANGOLA |
| CT1 | COUNTRY-BELGIUM |
| CT2 | COUNTRY-AUSTRIA |
| CT3 | COUNTRY-GERMANY |
| CT5 | COUNTRY-NETHERLANDS |
| CT6 | COUNTRY-ITALY |
| CT7 | COUNTRY-DENMARK |
| CT8 | COUNTRY-PORTUGAL |

| | |
|---|---|
| CT9 | COUNTRY-SPAIN |
| CTD | EQUIPMENT-CARGO TIE DOWN (MOVABLE) |
| CU1 | COUNTRY-NORWAY |
| CU2 | COUNTRY-FINLAND |
| CU3 | COUNTRY-FRANCE |
| CU4 | COUNTRY-SWEDEN |
| CU5 | COUNTRY-SWITZERLAND |
| CU7 | COUNTRY-KUWAIT |
| CU8 | COUNTRY-SAUDI ARABIA |
| CU9 | COUNTRY-UNITED KINGDOM |
| CV3 | COUNTRY-MEXICO |
| CV4 | COUNTRY-ISRAEL |
| CV5 | COUNTRY-JAPAN |
| CV6 | COUNTRY-CHILE |
| CW1 | COUNTRY-KOREA |
| CW2 | COUNTRY-GULF AREAS (BAHRAIN, KUWAIT, OMAN, QATAR, SAUDI ARABIA, UAE) |
| CW5 | COUNTRY-VENEZUELA |
| CWA | WASHER-CAMERA, REAR |
| CX0 | COUNTRY-AZERBAIJAN |
| CX2 | COUNTRY-COLOMBIA |
| CX3 | COUNTRY-ECUADOR |
| CX9 | COUNTRY-LEBANON |
| CY2 | COUNTRY-JORDAN |
| CZ3 | COUNTRY-RUSSIA |
| D07 | CONSOLE-FRT COMPT, FLOOR, CUSTOM |
| D2D | COUNTRY-PHILIPPINES |
| D2O | COUNTRY-CURACAO |
| D2Y | COUNTRY-ANTIGUA |
| D3B | COUNTRY-BERMUDA |
| D3D | COUNTRY-REPUBLIC OF TRINIDAD AND TOBAGO |
| D3H | COUNTRY-BELARUS |

| | |
|---|---|
| D3I | COUNTRY-BARBADOS |
| D3J | COUNTRY-CAYMAN ISLANDS |
| D3K | COUNTRY-DOMINICAN REPUBLIC |
| D3L | COUNTRY-EL SALVADOR |
| D3M | COUNTRY-GUATEMALA |
| D3P | COUNTRY-HAITI |
| D3Q | COUNTRY-HONDURAS |
| D3U | COUNTRY-ST MAARTEN |
| D4G | COUNTRY-BAHAMAS |
| D4N | COUNTRY-COSTA RICA |
| D4X | COUNTRY-ARUBA |
| D5D | COUNTRY-NICARAGUA |
| D5K | COUNTRY-SURINAM |
| D75 | HANDLE O/S DOOR-BODY COLOR |
| DCK | CONSOLE-FRT COMPT, FLOOR, CUSTOM, W/COOLER |
| DD8 | MIRROR I/S R/V-LT SENSITIVE |
| DE2 | MIRROR O/S-LH & RH, MANUAL CONTROL, FOLDING, COLOR |
| DF2 | MIRROR O/S-LH & RH, WIDE LOAD, FOLDING, STAINLESS STEEL |
| DH6 | MIRROR I/S FRT VAN-LH & RH, SUNSHADE, ILLUM |
| DL3 | MIRROR O/S-LH & RH, REMOTE CONTROL, ELECTRIC, HEATED, POWER FOLDING, TURN SIG IND, LT SENSITIVE, COLOR |
| DL8 | MIRROR O/S-LH & RH, REMOTE CONTROL, ELECTRIC, HEATED |
| DMQ | DECAL-ALASKAN |
| DNS | EQUIPMENT-SUPPLIER INSTALLED |
| DNU | EQUIPMENT-ADDITIONAL VIDEO SCREEN |
| DP6 | MIRROR PROVISIONS-HOUSING, PAINTED |
| DP9 | MIRROR PROVISIONS-HOUSING, CHROME |
| DPN | MIRROR O/S-LH & RH, WIDE LOAD, VERTICAL GLASS, MAN EXTENDING,MAN FOLDING, HEATED, TURN SIG IND, REMOTE CONTROL |

| | |
|---|---|
| DPU | COUNTRY-BONAIRE |
| DPX | COUNTRY-TURKS AND CAICOS ISLANDS |
| DQS | MIRROR O/S-LH & RH, WIDE LOAD, VERT GLS,MAN EXT,PWR FLD,HTD,TURN SIG IND,R/CON,MEMORY,AUX CLEAR LP,AUX CARGO LP |
| DR4 | MIRROR O/S-LH & RH, REMOTE CONTROL, ELECTRIC, HEATED, LT SENSITIVE, POWER FOLDING, COLOR |
| DRZ | MIRROR I/S R/V-LT SENSITIVE, FULL VIDEO DISPLAY |
| DT4 | ASHTRAY-CIGARETTE LIGHTER |
| E20 | HANDLE O/S DOOR-CHROME |
| E29 | EQUIPMENT-MODIFICATION BASE EQUIPMENT |
| E5D | ACCESSORY-ASSIST HANDLES - INTERIOR |
| E63 | BODY EQUIPMENT-FLEETSIDE PICK-UP BOX |
| E6N | END GATE-PUBX FRT UPR MOLDING DELETE |
| E7C | COUNTRY-LIBYA |
| EF5 | COUNTRY-PANAMA |
| EF7 | COUNTRY-UNITED STATES OF AMERICA (USA) |
| EXP | EXPORT- |
| F60 | SPRING FRONT-HEAVY DUTY |
| FE9 | CERTIFICATION-EMISSION, FEDERAL |
| FHO | VEHICLE FUEL-GASOLINE E10 |
| FHS | VEHICLE FUEL-GASOLINE E85 |
| FHV | VEHICLE FUEL-BIFUEL & MONOVALENT PLUS CNG |
| FHX | VEHICLE FUEL-DIESEL B20 |
| FWI | PLANT CODE-FT WAYNE, IN, USA |
| G0P | SALES PACKAGE-SPECIAL OPS EDITION |
| G0S | SALES PACKAGE-CAMO EDITION |
| G1C | PRIMARY COLOR-EXTERIOR, OVERCAST MET(402Y) |
| G1E | PRIMARY COLOR-EXTERIOR, LIMITED ADDICTION RED TINT (405Y) |

| | |
|---|---|
| G1F | PRIMARY COLOR-EXTERIOR, BURNISHED BRANDY MET(406Y) |
| G1K | PRIMARY COLOR-EXTERIOR, SACR'E BLUE MET(409Y) |
| G1W | PRIMARY COLOR-EXTERIOR, ABALONE WHITE TRICOAT(140X) |
| G7C | PRIMARY COLOR-EXTERIOR, PULL ME OVER RED SOLID (130X) |
| G7T | PRIMARY COLOR-EXTERIOR, BAROQUE RED MET (142X) |
| G7U | PRIMARY COLOR-EXTERIOR, PLUM BERRY MET (143X) |
| G80 | AXLE POSITRACTION-LIMITED SLIP |
| GAJ | APPEARANCE PACKAGE-HIGH COUNTRY |
| GAN | PRIMARY COLOR-EXTERIOR, SWITCHBLADE SILVER MET (G) 636R |
| GAR | PRIMARY COLOR-EXTERIOR, CARBON FLASH MET (G) 501Q |
| GAT | APPEARANCE PACKAGE-GMC "ALL TERRAIN" |
| GAZ | PRIMARY COLOR-EXTERIOR, SUMMIT WHITE (G) 8624 |
| GBA | PRIMARY COLOR-EXTERIOR, BLACK (G) 8555 |
| GCS | PRIMARY COLOR-EXTERIOR, VELVET RED MET (681R) |
| GGC | GRILLE-CUSTOM |
| GJB | PRIMARY COLOR-EXTERIOR, MINERAL MET (433B) |
| GMU | PRIMARY COLOR-EXTERIOR, PEPPERDUST MET-2 (441B) |
| GOZ | PRIMARY COLOR-EXTERIOR, DAYDREAM BEIGE MET (892T) |
| GPA | PRIMARY COLOR-EXTERIOR, GASOLINE MET-2 (457B) |
| GT4 | AXLE REAR-3.73 RATIO |
| GT5 | AXLE REAR-4.10 RATIO |
| GTY | AXLE-WIDE TRACK |
| GU4 | AXLE REAR-3.08 RATIO |
| GU5 | AXLE REAR-3.23 RATIO |
| GU6 | AXLE REAR-3.42 RATIO |

| | |
|---|---|
| GWT | PRIMARY COLOR-EXTERIOR, CHAMPAGNE SILVER MET (102V) |
| GWX | PRIMARY COLOR-EXTERIOR, SUBTERRANEAN MET (105V) |
| GXG | PRIMARY COLOR-EXTERIOR, IRIDIUM MET (121V) |
| GYK | PRIMARY COLOR-EXTERIOR, MYSTIC MOONLIGHT BLUE METALLIC (207V) |
| GYM | PRIMARY COLOR-EXTERIOR, SATIN STEEL GREY METALLIC (205V) |
| H0K | INTERIOR TRIM CONFIG-LEATHER, LEVEL 3, COCOA / DUNE |
| H0U | INTERIOR TRIM CONFIG-CLOTH, LEVEL 2, JET BLACK |
| H1Y | INTERIOR TRIM CONFIG-LEATHER, LEVEL 2, JET BLACK |
| H2G | INTERIOR TRIM CONFIG-VINYL, LEVEL 1, JET BLACK |
| H2Q | INTERIOR TRIM CONFIG-VINYL, LEVEL 1, JET BLACK /DK ASH |
| H2R | INTERIOR TRIM CONFIG-CLOTH, LEVEL 1, JET BLACK/ DK ASH |
| H2S | INTERIOR TRIM CONFIG-CLOTH, LEVEL 2, JET BLACK / DK ASH |
| H2T | INTERIOR TRIM CONFIG-CLOTH, LEVEL 2, COCOA / DUNE |
| H2U | INTERIOR TRIM CONFIG-LEATHER, LEVEL 3, JET BLACK |
| H2V | INTERIOR TRIM CONFIG-LEATHER, LEVEL 3, JET BLACK / DK ASH |
| H2W | INTERIOR TRIM CONFIG-LEATHER, LEVEL 3, JET BLACK / COBALT |
| H2X | INTERIOR TRIM CONFIG-LEATHER, LEVEL 4, JET BLACK |
| H2Y | INTERIOR TRIM CONFIG-LEATHER, LEVEL 4, COCOA / DUNE |
| H2Z | INTERIOR TRIM CONFIG-CLOTH, LEVEL 2, VAR1, JET BLACK |
| H3A | INTERIOR TRIM CONFIG-LEATHER VAR 1, LEVEL 3, COCOA / DUNE |
| H3B | INTERIOR TRIM CONFIG-LEATHER VAR 1, LEVEL 3, JET BLACK |

| | |
|---|---|
| H3C | INTERIOR TRIM CONFIG-LEATHER VAR 1, LEVEL 3, JET BLACK / DK ASH |
| H4S | INTERIOR TRIM CONFIG-LEATHER, LEVEL 3, MINK |
| H4W | INTERIOR TRIM CONFIG-LEATHER, LEVEL 4, COCOA / DARK ATMOSPHERE |
| H4X | INTERIOR TRIM CONFIG-LEATHER, LEVEL 4, COCOA / PILLION BROWN SAUVAGE |
| H4Y | INTERIOR TRIM CONFIG-LEATHER, LEVEL 4, COCOA / SHALE |
| HD7 | HANDLE-O/S, DR, ILLUMINATED |
| HDQ | INTERIOR TRIM CONFIG-LEATHER, LEVEL 4, COCOA / MAPLE SUGAR |
| HEW | INTERIOR TRIM CONFIG-CLOTH, LEVEL 3, JET BLACK |
| HEY | INTERIOR TRIM CONFIG-LEATHER, LEVEL 4, JET BLACK / VECCHIO |
| HHZ | INTERIOR TRIM CONFIG-LEATHER, LEVEL 4, CHOCCACHINO |
| HJU | INTERIOR TRIM CONFIG-LEATHER, LEVEL 4, PLATINUM JET BLACK |
| HJV | INTERIOR TRIM CONFIG-CLOTH, LEVEL 3, COCOA / DUNE |
| HP5 | ELECTRIFIED PROPULS-ELECTRIC, BAS, GEN 3 |
| HQX | HEADLAMP COLOR-BEZEL, BODY COLOR |
| HQY | HEADLAMP COLOR-BEZEL, CHROME |
| HQZ | INTERIOR TRIM CONFIG-LEATHER, LEVEL 3, JET BLACK/MEDIUM ASH GRAY |
| I17 | ENGINEERING YEAR-2017 |
| IO3 | RADIO-INFOTAINMENT SYSTEM - BASE HMI |
| IO5 | RADIO-INFOTAINMENT SYSTEM - UPLEVEL HMI, ENHANCED CONNECTIVITY |
| IO6 | RADIO-INFOTAINMENT SYSTEM - UPLEVEL HMI, ENHANCED CONNECTIVITY, EMBEDDED NAVIGATION |
| IOB | RADIO-INFOTAINMENT SYSTEM - MIDLEVEL HMI, MIDLEVEL CONNECTIVITY |
| J71 | BRAKE PARKING-POWER OPERATED |
| J95 | BRAKE-HYD POWER, SINGLE REAR WHEEL, 4 WHL DISC |

| | |
|---|---|
| J96 | BRAKE-HYD POWER, DUAL REAR WHEEL, 4 WHL DISC |
| JB1 | BRAKE-VAC POWER, 17" DISC/DISC, W/ESS, 7700 LBS |
| JD9 | BRAKE-VAC POWER, 17" DISC/DISC, W/VSES, 7700 LBS |
| JF4 | PEDALS-ADJUSTABLE, POWER |
| JHD | CONTROL-HILL DESCENT, GEAR HOLD |
| JK1 | TIRE PRESS INDICATOR-LOW TIRE PRESSURE - NONE |
| JL1 | CONTROL-INTEGRATED TRAILER BRAKE |
| K05 | HEATER ENG-BLOCK |
| K34 | CRUISE CONTROL-AUTOMATIC, ELECTRONIC |
| K40 | ENGINE BRAKE-EXHAUST |
| K47 | AIR CLEANER-HIGH CAPACITY |
| K4B | BATTERY-LN3, FLA, 12V, 70AH, 730 SAE CCA, AUX |
| K4C | CHARGER-INDUCTIVE PORTABLE WIRELESS DEVICE |
| K4D | BATTERY-LN3, FLA, 12V, 70AH, 730 SAE CCA, DUAL |
| K59 | CRUISE CONTROL-AUTOMATIC, ADAPTIVE |
| K6H | ORNAMENTATION-R TAILGATE BOW TIE, DELETE |
| KA1 | HEATER SEAT FRT-DRVR & PASS |
| KA6 | HEATER SEAT-REAR |
| KB6 | HEATER-SEAT, COOLING, FRT |
| KC4 | COOLING SYSTEM-ENG OIL |
| KG4 | GENERATOR-150 AMP |
| KHB | GENERATOR-150 AMP AND 220 AMP, DUAL |
| KI4 | RECEPTACLE-ELECTRICAL, ACCESSORY 110 VOLT |
| KI5 | RECEPTACLE-ELECTRICAL, ACCESSORY 230 VOLT |
| KNP | COOLING SYSTEM-TRANS, HD |
| KQV | HEATER-SEAT, VENTED, FRT |
| KRV | REFRIGERANT-LOW GWP |

| | |
|---|---|
| KSG | CRUISE CONTROL-AUTOMATIC, ADAPTIVE, WITH STOP/GO |
| KW5 | GENERATOR-220 AMP |
| KW7 | GENERATOR-170 AMP |
| KY4 | GENERATOR-HYBRID MOTOR, BAS 3, 100 AMP |
| L5P | ENGINE-DIESEL, 8 CYL, 6.6L, DI, V8, TURBO, DURAMAX, GEN 5, VAR. 1 |
| L83 | ENGINE-GAS, 8 CYL, 5.3L, SIDI VVT, AFM, E85 MAX, ALUM, GM |
| L86 | ENGINE-GAS, 8 CYL, 6.2L, SIDI VVT, AFM, E85 MAX, ALUM, GM |
| L8B | ENGINE-GAS, 8 CYL, 5.3L, V8, BAS 3, ALUM, GEN 5 |
| L96 | ENGINE-GAS, 8 CYL, 6.0L, SFI, E85 MAX, IRON, GM |
| LC8 | ENGINE-LPG/CNG, 8 CYL, V8, 6.0L, SFI, GEN 1, GMNA |
| LV1 | ENGINE-GAS, 6 CYL, 4.3L, SIDI, V6, VVT, E85 MAX, IRON |
| LV3 | ENGINE-GAS, 6 CYL, 4.3L, GEN 5, SIDI, V6, VVT, OHV, E85 MAX, ALUM |
| M1F | POWER TAKE OFF-RR PTO |
| M2P | TRANSMISSION-MAN 5 SPD, 4.69 1ST, 2.56 2ND, 1.53 3RD, 1.00 4TH, 0.73 5TH, TR3655 |
| M5U | TRANSMISSION-AUTO 8 SPD, 8L90 |
| M5X | TRANSMISSION-AUTO 8 SPD, 8L90, BAS+ |
| MAA | MARKETING AREA-AFRICA |
| MAF | MARKETING AREA-SOUTHEAST ASIA |
| MAH | MARKETING AREA-US, PUERTO RICO/USVI |
| MAM | MARKETING AREA-MIDDLE EAST |
| MAW | MARKETING AREA-KOREA |
| MAY | MARKETING AREA-ANDEAN (SOUTH AMERICA 2) |
| MBC | MARKETING AREA-CANADA |
| MBD | MARKETING AREA-CENTRAL AMERICA/CARIBBEAN |
| MBI | MARKETING AREA-ISRAEL |
| MBM | MARKETING AREA-EUROPE GROUP |

| | |
|---|---|
| MBR | MARKETING AREA-RUSSIA GROUP |
| MCX | MARKETING AREA-MEXICO |
| MQ7 | TRANSMISSION-MAN 5 SPD, TREMEC, 109MM, 6.16 1ST, 3.11 2ND, 1.71 3RD, 1.00 4TH, 0.76 5TH (TR4050) |
| MSL | PLANT CODE-SILAO, MEXICO |
| MW7 | TRANSMISSION-AUTO 6 SPD, ALLISON, LCT 1000, 3.10 1ST, .71 5TH, .62 6TH, O/D, CONV CLUTCH |
| MXW | TRANSMISSION-MAN 5 SPD, 4.227 1ST, 2.375 2ND, 1.470 3RD, 1.000 4TH, 0.808TH, TREMEC, GEN 1 |
| MYC | TRANSMISSION-AUTO 6 SPD, HMD, 6L80 |
| MYD | TRANSMISSION-AUTO 6 SPD, HMD, 6L90 |
| N01 | LOCK CONTROL-FUEL PLUG |
| N05 | LOCK CONTROL-FUEL FILLER CAP |
| N08 | LOCK CONTROL-FUEL FILLER DR, REM CONT |
| N12 | EXHAUST SYSTEM-REAR EXIT |
| N2L | FUEL TANK-REAR TANK 40 GAL (151L) |
| N2M | FUEL TANK-FRONT TANK 23.5 GAL (89L) |
| N2N | FUEL TANK-DUAL TANK, FRONT TANK 23.5 GAL (89L) REAR TANK 40 GAL (151L) |
| N30 | STEERING WHEEL-DELUXE |
| N33 | STEERING COLUMN-TILT TYPE |
| N37 | STEERING COLUMN-TILT, TELESCOPING |
| N38 | STEERING COLUMN-TILT, TELESCOPING, POWER |
| N79 | WHEEL SPARE-18 X 8.0, J, STEEL, DESIGN 2 |
| NAA | ACCESSORY-ROCKER GUARD - TUBULAR |
| NE1 | CERTIFICATION-EMISSION, GEOGRAPHICALLY RESTRICTED REGISTRATION FOR VEHICLES UP TO 14,000 LBS GVW (USE 2003 MDL YR |
| NE4 | EMISSION SYSTEM-EEC 14 |
| NE9 | EMISSION SYSTEM-EEC 09 |
| NHT | PERFORMANCE PACKAGE-ENHANCED TOWING |
| NK5 | STEERING WHEEL-STANDARD |

| | |
|---|---|
| NKC | NOISE CONTROL-SYSTEM, ACTIVE NOISE CANCELLATION |
| NP0 | TRANSFER CASE-ACTIVE, SINGLE SPEED,SWITCH ACTIVATED,ALUM |
| NP5 | STEERING WHEEL-LEATHER WRAPPED |
| NQF | TRANSFER CASE-ELECTRIC SHIFT CONT, TWO SPEED, ALUM |
| NQG | TRANSFER CASE-MANUAL SHIFT CONT, TWO SPEED, ALUM |
| NQH | TRANSFER CASE-ACTIVE, TWO SPEED, SWITCH ACTIVATED, ALUM |
| NQL | EMISSION SYSTEM-KOREAN, LEV |
| NT7 | EMISSION SYSTEM-FEDERAL, TIER 2 |
| NTB | EMISSION SYSTEM-FEDERAL, TIER 3 |
| NU2 | EMISSION SYSTEM-CALIFORNIA, ULEV2 |
| NU5 | EMISSION SYSTEM-CALIFORNIA, BIN 4 |
| NUB | EMISSION SYSTEM-CALIFORNIA, ULEV70 |
| NUF | EMISSION SYSTEM-CALIFORNIA, ULEV125 |
| NUK | EMISSION SYSTEM-CALIFORNIA, ULEV250 |
| NUM | EMISSION SYSTEM-CALIFORNIA, LEV3 MDV 10-14K GVW |
| NUR | EMISSION SYSTEM-CALIFORNIA, LEV395 |
| NV8 | STEERING-POWER, MAGNETIC SPEED, VARIABLE ASSIST |
| NZ4 | WHEEL SPARE-17 X 7.5, J, STEEL, DESIGN 2 |
| NZD | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 6 |
| NZG | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 7 |
| NZH | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 8 |
| NZJ | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 9 |
| NZM | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 10 |
| NZN | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 11 |
| NZP | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 12 |
| NZQ | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 15 |
| NZR | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 16 |
| NZT | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 18 |

| | |
|---|---|
| NZZ | SALES PACKAGE-SKID PLATE, "OFF ROAD" SPORT |
| P03 | COVER, WHEEL-VAR 3 |
| P06 | TRIM DISCS-WHEEL |
| P3H | ORNAMENTATION-EXTR, BOWTIE |
| PB4 | LOCK CONTROL-WHEEL |
| PHF | WHEEL-18 X 8.0, J, ALUMINUM, DESIGN 30 |
| PPA | EQUIPMENT-ASSIST, OPEN & CLOSE, TAILGATE |
| PTO | ENGINE CONTROL-POWER TAKE OFF (PTO) CONTROLS |
| PTW | WHEEL-18 X 8.0, J, ALUMINUM, DESIGN 2 |
| PYN | WHEEL-17 X 7.5, J, STEEL, DESIGN 7 |
| PYQ | WHEEL-17 X 7.5, J, ALUMINUM, DESIGN 7 |
| PYR | WHEEL-18 X 8.0, J, ALUMINUM, DESIGN 24 |
| PYS | WHEEL-20 X 8.5, J, ALUMINUM, DESIGN 14 |
| PYT | WHEEL-18 X 8.0, J, STEEL, DESIGN 2 |
| PYV | WHEEL-18 X 8.0, J, ALUMINUM, DESIGN 23 |
| PYW | WHEEL-17 X 6.5, J, STEEL, DESIGN 2 |
| PZX | WHEEL-18 X 8.5, J, ALUMINUM, DESIGN 2 |
| Q5U | WHEEL-17 X 8.0, J, ALUMINUM, DESIGN 2 |
| Q5W | WHEEL-17 X 8.0, J, ALUMINUM, DESIGN 1 |
| Q7L | WHEEL-22 X 9.0, J, ALUMINUM, DESIGN 2 |
| Q7M | WHEEL-22 X 9.0, J, ALUMINUM, DESIGN 3 |
| Q7R | WHEEL-20 X 8.5, J, ALUMINUM, DESIGN 13 |
| QAR | TIRE ALL-P265/60R17 SL 108V BW AL3 |
| QBL | TIRE ALL-P265/70R17 SL 113H BW OOR |
| QF2 | TIRE ALL-LT275/65R18 E 123/120Q BW MT, VAR 1 |
| QFC | TIRE ALL-LT265/60R20 E 121/XXX S YYY AT |
| QGM | TIRE ALL-LT265/70R18 E 124/121R BW AT |
| QHQ | TIRE ALL-LT245/75R17 E 121/118R BW ALS |
| QHX | TIRE ALL-P285/50R20 SL 111H BW AL3 |
| QQO | TIRE ALL-LT235/80R17 E 120/117Q BW ALS |

| | |
|---|---|
| QSS | TIRE ALL-P275/55R20 SL 111S BW AL2 |
| QST | TIRE ALL-P285/45R22 SL 110H BW AL3 |
| QWF | TIRE ALL-LT265/70R18 E 124/121 S BW ALS |
| QXN | TIRE ALL-P265/65R18 SL 112S BW OOR |
| QXO | TIRE ALL-P265/65R18 SL 112H BW AL3 |
| QXT | TIRE ALL-LT265/70R17 E 121/118 Q BW AT |
| QXU | TIRE ALL-LT265/70R17 E 121/118 Q BW AT |
| QZT | TIRE ALL-LT235/80R17 E 120/117Q BW AT |
| R6J | CONTROL-SALES ITEM NO. 10 |
| R6K | CONTROL-SALES ITEM NO. 11 |
| R6V | CONTROL-SALES ITEM NO. 21 |
| R88 | ACCESSORY-ILLUMINATED EMBLEM - EXTERIOR - DESIGN 2 |
| RAP | WHEEL-17 X 8.0, J, STEEL, DESIGN 1 |
| RBR | WHEEL-22 X 9.0, J, STEEL, DESIGN 1 |
| RBW | TIRE ALL-P265/65R18 SL 112T WOL AT |
| RBX | TIRE ALL-P265/65R18 SL 112T BW AT |
| RBZ | TIRE ALL-P255/70R17 SL 110S BW ALS |
| RC3 | TIRE ALL-P265/70R17 SL 113S BW AT |
| RC4 | TIRE SPARE-P265/70R17 SL 113S BW |
| RC5 | TIRE ALL-LT265/70R17 C 112Q BW AT |
| RC7 | TIRE ALL-P275/55R20 SL 111S BW AT |
| RCV | WHEEL-18 X 8.5, J, ALUMINUM, DESIGN 4 |
| RCW | WHEEL-18 X 8.5, J, ALUMINUM, DESIGN 5 |
| RD1 | WHEEL-18 X 8.5, J, ALUMINUM, DESIGN 6 |
| RD2 | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 2 |
| RD3 | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 3 |
| RD4 | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 4 |
| RD5 | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 5 |
| RD6 | WHEEL-17 X 8.0, J, STEEL, DESIGN 2 |
| RD7 | WHEEL-17 X 8.0, J, STEEL, DESIGN 3 |
| RDI | ACCESSORY-KEYLESS ENTRY |

|  |  |
|---|---|
| REG | WHEEL-18 X 8.5, J, ALUMINUM, DESIGN 7 |
| RHH | TIRE ALL-P285/45R22 SL 110H BW AT |
| RHM | TIRE SPARE-LT265/70R17 C 112Q BW AT |
| RHO | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 19 |
| RI8 | TIRE ALL-265/65R18 SL 114S BW MT |
| RIA | ACCESSORY-FLOOR LINER - CONTOURED |
| RIB | ACCESSORY-FLOOR LINER - CONTOURED - 3RD ROW |
| RKX | TIRE ALL-P265/65R18 SL 112T BW ALS |
| RM7 | WHEEL SPARE-17 X 8.0, J, STEEL, DESIGN 1 |
| RN2 | ACCESSORY-ILLUMINATED EMBLEM - EXTERIOR - DESIGN 1 |
| RO1 | ACCESSORY-GRILLES/GRILLE INSERT - ALTERNATE DESIGN 3 |
| RO2 | ACCESSORY-GRILLES/GRILLE INSERT - ALTERNATE DESIGN 4 |
| RPT | WHEEL-22 X 9.0, J, ALUMINUM, DESIGN 14 |
| RQ9 | WHEEL-20 X 8.5, J, ALUMINUM, DESIGN 1 |
| RQA | WHEEL-20 X 8.5, J, ALUMINUM, DESIGN 2 |
| RS7 | WHEEL-17 X 6.5, J, ALUMINUM, DESIGN 1 |
| RT4 | WHEEL-18 X 8.0, J, ALUMINUM, DESIGN 1 |
| RT5 | WHEEL-18 X 8.5, J, ALUMINUM, DESIGN 1 |
| RTH | WHEEL-20 X 8.5, J, ALUMINUM, DESIGN 3 |
| RTL | WHEEL-20 X 9.0, J, ALUMINUM, DESIGN 1 |
| RUF | WHEEL SPARE-17 X 7.5, J, STEEL, DESIGN 1 |
| RVA | WHEEL-22 X 9.0, J, ALUMINUM, DESIGN 1 |
| RVG | ACCESSORY-ADAPTER - TRAILER HARNESS |
| RVQ | ACCESSORY-ASSIST STEPS - TUBULAR - OVAL - BLACK |
| RVS | ACCESSORY-ASSIST STEPS - TUBULAR - ROUND - BLACK |
| RVX | ACCESSORY-BALL MOUNT - TRAILER HITCH |
| RW2 | ACCESSORY-BED RAILS - BLACK |
| RW3 | ACCESSORY-BED RAILS - CHROME |

| | |
|---|---|
| RW6 | ACCESSORY-BED STORAGE BOX - FIXED FULL WIDTH - METAL |
| RWI | ACCESSORY-BODY SIDE MOLDINGS - CHROME |
| RWK | ACCESSORY-BODY SIDE MOLDINGS - PAINTED |
| RWR | ACCESSORY-CAMERA - REAR VISION |
| RWS | ACCESSORY-FLOOR MATS - CARPET |
| RWU | ACCESSORY-CARGO AREA ORGANIZER - COLLAPSIBLE |
| RX1 | ACCESSORY-WHEEL, WITH INSERTS - DESIGN 1 |
| RXH | ACCESSORY-CENTER CAP - WHEEL - DESIGN 1 |
| RXJ | ACCESSORY-CENTER CAP - WHEEL - DESIGN 2 |
| RXN | ACCESSORY-WHEEL, WITH INSERTS - DESIGN 2 |
| RXQ | ACCESSORY-CONVENIENCE NET - BED MOUNTED |
| RY7 | ACCESSORY-DOOR HANDLES - ALTERNATE FINISH 1 |
| RYT | ACCESSORY-FIRST AID KIT |
| RZ9 | ACCESSORY-GRILLES/GRILLE INSERT - ALTERNATE DESIGN 1 |
| RZB | ACCESSORY-GRILLES/GRILLE INSERT - ALTERNATE DESIGN 2 |
| RZO | ACCESSORY-WHEEL - 20" - ALUMINUM - DESIGN 9 |
| RZY | ACCESSORY-HARNESS - WIRING |
| S08 | ACCESSORY-HIGHWAY SAFETY KIT |
| S0M | ACCESSORY-ILLUMINATED DOOR SILLS |
| S0P | ACCESSORY-INSERT - FLOOR CONSOLE |
| S0Y | ACCESSORY-LAMPS - CARGO AREA |
| S1V | ACCESSORY-HEADPHONES - RSE |
| S2B | WHEEL SPARE-17 X 7.0, J, ALUMINUM, DESIGN 1 |
| S3X | ACCESSORY-LAMPS - FRONT ROOF MOUNTED - OFF-ROAD |
| S41 | ACCESSORY-LINER - WHEEL HOUSE |

| | |
|---|---|
| S42 | ACCESSORY-LOAD STOPS - UTILITY RACK |
| S44 | ACCESSORY-LOCKING PIN - TRAILER HITCH |
| S47 | ACCESSORY-LUG NUTS |
| S4O | ACCESSORY-MIRRORS - TRAILER EXTENSION - ALT FINISH |
| S4Z | ACCESSORY-MIRRORS - TRAILER EXTENSION |
| S55 | ACCESSORY-FLOOR MATS - ALL WEATHER - ALT DESIGN |
| S5S | ACCESSORY-NUDGE BAR - TUBULAR |
| S6D | ACCESSORY-PORTABLE REFRIGERATOR |
| S6L | ACCESSORY-PROTECTOR - ROCKER PANEL |
| S6M | ACCESSORY-RADIO KIT - NAVIGATION |
| S6N | ACCESSORY-RECEIVER COVER - TRAILER HITCH |
| S6P | ACCESSORY-REMOTE START KIT |
| S6Q | ACCESSORY-ROADSIDE ASSISTANCE PACKAGE |
| S6V | ACCESSORY-ASSIST STEPS - RETRACTABLE |
| S6W | ACCESSORY-SEAT COVER - MUDDER (PROTECTIVE) |
| S9O | WHEEL-20 X 8.5, J, ALUMINUM, DESIGN 18 |
| SAF | LOCK-SPARE TIRE, HOIST SHAFT |
| SAM | ACCESSORY-SKID PLATES |
| SAO | ACCESSORY-SMOKERS PACKAGE |
| SB1 | ACCESSORY-SPLASH GUARDS - FLAT |
| SB7 | ACCESSORY-DECAL PACKAGE - DESIGN 1 |
| SB9 | ACCESSORY-DECAL PACKAGE - DESIGN 2 |
| SBY | ACCESSORY-SPORT BAR - BED MOUNTED - DESIGN 1 |
| SCN | APPEARANCE PACKAGE-SPORT |
| SCU | ACCESSORY-SPORT BAR - BED MOUNTED - DESIGN 2 |
| SCZ | ACCESSORY-TAILGATE HANDLE - ALTERNATE FINISH - CHROME |
| SD5 | ACCESSORY-TIRE PRESSURE MONITOR |
| SDA | ACCESSORY-TOW HOOKS |

| | |
|---|---|
| SDE | ACCESSORY-TRAILER HITCH - REMOVABLE |
| SDI | ACCESSORY-TRIANGLE - REFLECTIVE |
| SE4 | ACCESSORY-WHEEL - 18" - ALUMINUM - DESIGN 1 |
| SES | ACCESSORY-WHEEL - 22 X 9.0 - J - ALUMINUM - DESIGN 1 |
| SEU | ACCESSORY-WHEEL - 22 X 9.0 - J - ALUMINUM - DESIGN 2 |
| SEV | ACCESSORY-WHEEL - 22 X 9.0 - J - ALUMINUM - DESIGN 3 |
| SEW | ACCESSORY-WHEEL - 22 X 9.0 - J - ALUMINUM - DESIGN 4 |
| SEY | ACCESSORY-WHEEL - 22 X 9.0 - J - ALUMINUM - DESIGN 5 |
| SEZ | ACCESSORY-WHEEL - 22 X 9.0 - J - ALUMINUM - DESIGN 6 |
| SF0 | ACCESSORY-WHEEL - 22 X 9.0 - J - ALUMINUM - DESIGN 7 |
| SF1 | ACCESSORY-WHEEL - 22 X 9.0 - J - ALUMINUM - DESIGN 8 |
| SF5 | ACCESSORY-WHEEL FLARES - ALTERNATE DESIGN - MOLDED COLOR |
| SF6 | ACCESSORY-WHEEL FLARES - ALTERNATE DESIGN - PAINTED |
| SF8 | ACCESSORY-DECAL PACKAGE - DESIGN 3 |
| SFC | ACCESSORY-DECAL PACKAGE - DESIGN 6 |
| SFE | ACCESSORY-WHEEL LOCKS |
| SFJ | ACCESSORY-WINDOW SHADES - REFLECTIVE |
| SFV | ACCESSORY-WIRELESS NETWORK INTERFACE MODULE |
| SFZ | ACCESSORY-EMBLEM - EXTERIOR - DESIGN 1 |
| SG1 | ACCESSORY-EMBLEM - EXTERIOR - DESIGN 2 |
| SGF | WHEEL-22 X 9.0, J, ALUMINUM, DESIGN 4 |
| SGG | WHEEL-22 X 9.0, J, ALUMINUM, DESIGN 5 |
| SGK | WHEEL-22 X 9.0, J, ALUMINUM, DESIGN 6 |
| SGM | ACCESSORY-WHEEL - 22 X 9.0 - J - ALUMINUM - DESIGN 9 |
| SH0 | WHEEL-22 X 9.0, J, ALUMINUM, DESIGN 7 |
| SIE | ACCESSORY-PUBX TIERED STORAGE |

| | |
|---|---|
| SIF | ACCESSORY-RSE - PORTABLE MEDIA CONNECTIVITY PACKAGE |
| SII | WHEEL-22 X 9.0, J, ALUMINUM, DESIGN 8 |
| SIL | ACCESSORY-RSE - PORTABLE MEDIA CONNECTIVITY PKG - W/INTEGRATED POWER |
| SIY | WHEEL-22 X 9.0, J, ALUMINUM, DESIGN 9 |
| SJ9 | ACCESSORY-GRILLE / GRILLE INSERTS - ALTERNATE FINISH 1 |
| SJA | ACCESSORY-GRILLE / GRILLE INSERTS - ALTERNATE FINISH 2 |
| SKD | VEHICLE-SEMI-KNOCKED DOWN |
| SKP | WHEEL SPARE-17 X 6.5, J, STEEL, DESIGN 1 |
| SL7 | ACCESSORY-PUBX LADDER / UTILITY RACK STANCHIONS |
| SLT | EQUIPMENT-'LT' SALES PKG |
| SMI | WHEEL-22 X 9.0, J, ALUMINUM, DESIGN 17 |
| SNO | ACCESSORY-HITCH COMPLETION PKG - GOOSENECK |
| SPY | ACCESSORY-LUG NUTS - ALT FINISH |
| SPZ | ACCESSORY-WHEEL LOCKS - ALT FINISH |
| SRW | CHASSIS-SINGLE REAR WHEEL, RIDE & HANDLING |
| ST7 | SALES PACKAGE-WT BLACK OUT PACKAGE |
| ST9 | SALES PACKAGE-C/K 10 |
| STF | SALES PACKAGE-ALL TERRAIN X |
| STH | SALES PACKAGE-RALLY 2 |
| STJ | SALES PACKAGE-CUSTOM SPORT 2 |
| SU2 | SALES PACKAGE-RALLY 2 Z71 |
| SXL | EQUIPMENT-SLX SALES PACKAGE |
| SYT | ACCESSORY-SILL PLATES - ALTERNATE FINISH |
| T2H | ORNAMENTATION-EXTR, EXPORT UNIQUE REQUIREMENTS |
| T3U | LAMP FRT FOG-FRT FOG |
| T4F | HEADLAMPS-HIGH INTENSITY DISCHARGE |
| T4L | HEADLAMPS-LED |

| | |
|---|---|
| T4Z | SHIFTER INTERLOCK-SEAT BELT ASSURANCE SYSTEM |
| T79 | LAMP-FOG, RR |
| T89 | LAMP-TAIL & STOP, EXPORT |
| T94 | CONTROL, HEADLAMPS-LH RULE OF THE ROAD |
| TB4 | BODY EQUIPMENT-LIFT GATE (MANUAL) |
| TB5 | BODY EQUIPMENT-LIFT GATE (POWER) |
| TB8 | CONTROL, HEADLAMPS-RH RULE OF THE ROAD |
| TBD | ORNAMENTATION-EXTR, BOWTIE |
| TBD | PROVISIONS-SIDE TOP CAP DELETE |
| TBD | WHEEL-22" WHEEL (RPO: SMI) |
| TBD | WW-20 X 8.5, J, ALUMINUM (PYU) |
| TC2 | BODY EQUIPMENT-LIFT GATE, POWER, HANDS FREE |
| TC7 | GRILLE-RADIATOR, BODY COLOR SIDE, W/ CHROME TIPS |
| TCB | PLANT CODE-VALENCIA, VENEZUELA |
| TDM | MODE-TEEN DRIVER SETTINGS |
| TG5 | PLAYER-COMPACT DISC AND MP3 |
| TGG | LANGUAGE CONTROL-ENGLISH, ARABIC, FRENCH |
| TGK | COLOR COMBINATION-SOLID, SPECIAL PAINT |
| TL1 | GRILLE-SPECIAL |
| TQ5 | HEADLAMP HIGH BEAM-AUTO CONTROL |
| TR2 | LAMP-TURN SIGNAL, ENLARGED |
| TRB | GRILLE-RADIATOR, BODY COLOR |
| TRW | PROVISIONS-LAMP, ROOF MOUNTED |
| TUF | ORNAMENTATION-EMBLEM, "TEXAS EDITION" |
| U01 | LAMP-FIVE, ROOF MARKER, TRUCK |
| U19 | SPEEDOMETER-INST, KILO & MILES, KILO ODOMETER |
| U2J | DIGITAL AUDIO SYSTEM-S-BAND - NONE |
| U2K | DIGITAL AUDIO SYSTEM-S-BAND |

| | |
|---|---|
| U2L | RECEPTION-HD |
| U42 | ENTERTAINMENT PKG-RR SEAT, SINGLE DISP, REM CONTROL, RR CONSUMER PORT, 2-WIRELESS 2-CHANNEL HEADPHONES, OPTICAL DRIVE |
| U73 | ANTENNA-FIXED, RADIO |
| U77 | ANTENNA-RR WINDOW, RADIO |
| UB7 | PERFORMANCE PACKAGE-HIGHER PAYLOAD |
| UD5 | PARK ASSIST-FRONT AND REAR |
| UD7 | PARK ASSIST-REAR |
| UDA | COMMUNICATION SYSTEM-VEHICLE, DEACTIVATED |
| UDC | DISPLAY INSTRUMENT-DRIVER INFO ENHANCED (ONE COLOR GRAPHIC) |
| UDD | DISPLAY INSTRUMENT-DRIVER INFO ENHANCED (MULTI COLOR STANDARD GRAPHIC) |
| UDV | DISPLAY INSTRUMENT-DRIVER INFO ENHANCED, FULL CLUSTER (MULTI COLOR GRAPHIC) |
| UE0 | COMMUNICATION SYSTEM-VEHICLE - NONE |
| UE1 | COMMUNICATION SYSTEM-VEHICLE, ONSTAR |
| UE3 | COMMUNICATION SYSTEM-VEHICLE, CHEVYSTAR |
| UEU | SENSOR INDICATOR-FORWARD COLLISION ALERT |
| UF2 | LAMP-CARGO |
| UF3 | SWITCH-HIGH IDLE |
| UFG | SENSOR INDICATOR-REAR CROSS TRAFFIC ALERT |
| UFL | LANE ACTIVE SAFETY-DEPARTURE WARNING |
| UG1 | OPENER-GARAGE DOOR, UNIVERSAL |
| UGN | COLL IMMINENT BRK-ALL SPEED, VEH FWD MOVEMENT, BRAKE PREFILL, INTEGRATED BRAKE ASSIST |
| UHL | VEHICLE-U-HAUL |
| UHN | WHEEL-18 X 8.5, J, ALUMINUM, DESIGN 3 |
| UHS | DISPLAY INSTRUMENT-DRIVER INFO ENHANCED (MULTI COLOR ENHANCED GRAPHIC) |

| | |
|---|---|
| UHX | LANE ACTIVE SAFETY-KEEP ASSIST |
| UHY | COLL IMMINENT BRK-LOW SPEED, VEH FWD MOVEMENT, BRAKE PREFILL, INTEGRATED BRAKE ASSIST |
| UI3 | COMMUNICATION SYSTEM-VEHICLE, ERA GLONASS |
| UIC | ACCESSORY-ACCY COMBINATION PKG 1 |
| UJ5 | ACCESSORY-DVD ENTERTAINMENT SYSTEM - HEADREST - DUAL |
| UJM | TIRE PRESS INDICATOR-MANUAL LEARN |
| UK3 | CONTROL-STEERING WHEEL, ACCESSORY |
| UKC | SIDE ACTIVE SAFETY-OBSTACLE DETECTION ENHANCED |
| UKG | PARK ASSIST-FRONT, REAR, LATERAL-FRONT (SEMIAUTOMATIC STEERING & BRAKING ADVANCED PARKING AID) |
| UL2 | FREQUENCIES-EUROPEAN |
| UL4 | FREQUENCIES-SOUTH AMERICA |
| UL8 | FREQUENCIES-SAUDI ARABIAN |
| ULK | ACCESSORY-TOW HOOKS - RED |
| ULT | APPEARANCE PACKAGE-CADILLAC ESCALADE, PLATINUM |
| UMN | SPEEDOMETER-INST, MILES & KILO, MILES ODOMETER |
| UPF | WIRELESS INTERFACE-SHORT RANGE, VOICE REC |
| UQ3 | SPEAKER SYSTEM-ENHANCED AUDIO |
| UQ5 | SPEAKER SYSTEM-4, DUAL FRT DR MTD, DUAL EXTD RGE QTR MNTD |
| UQA | SPEAKER SYSTEM-PREMIUM AUDIO BRANDED WITH AMPLIFIER |
| UQG | SPEAKER SYSTEM-ENHANCED AUDIO WITH AMPLIFIER |
| UQH | SPEAKER SYSTEM-PREMIUM AUDIO BRANDED WITH SURROUND AMPLIFIER, AUDIOPHILE |
| UQS | SPEAKER SYSTEM-PREMIUM AUDIO BRANDED WITH SURROUND AMPLIFIER |
| UTJ | THEFT DETERENT-ELECTRICAL, UNAUTHORIZED ENTRY |

| | |
|---|---|
| UTM | THEFT DETERENT SYS-UNAUTHORIZED ENTRY, W/O REMOTE KEYLESS ENTRY |
| UTR | ALARM, HORN-CONTENT THEFT DETERENT, SELF POWERED |
| UTT | THEFT DETERENT-BODY SECURITY CONTENT |
| UTU | SENSOR, VEHICLE-INCLINATION |
| UTV | SENSOR, VEHICLE-INTERIOR MOVEMENT |
| UV6 | DISPLAY-HEAD UP |
| UVC | VISION-REAR VIEW, MONO, ANALOG |
| UVD | STEERING WHEEL HEAT-MANUAL |
| UVH | VISION-360 VIEW, MONO, ANALOG |
| UVZ | SENSOR-COLLISION AVOIDANCE & MITIGATION, VEHICLE REVERSE MOVEMENT |
| UY2 | WIRING PROVISIONS-CAMPER & 5TH WHEEL TRAILER |
| V10 | PROVISION OPTIONS-COLD WEATHER |
| V22 | GRILLE-RADIATOR, CHROME |
| V3Q | BAR-PUBX BRIDGE |
| V46 | BUMPER FRT-CHROME |
| V54 | LUGGAGE CARRIER-ROOF, PAINTED |
| V76 | HOOK-TOW |
| V78 | VEHICLE STATEMENT-(NONE) |
| V8C | VEHICLE STATEMENT-MEXICO |
| V8I | VEHICLE STATEMENT-ISRAEL |
| VAT | ACCESSORY-GRILLE / GRILLE INSERTS - ALTERNATE FINISH - CHROME |
| VAV | ACCESSORY-FLOOR MATS - ALL WEATHER |
| VB5 | BUMPER FRT-COLOR |
| VBJ | ACCESSORY-UNDERSEAT STORAGE |
| VBN | ACCESSORY-PUBX CARPET |
| VBR | ACCESSORY-PUBX RUBBER MAT |
| VBX | LANGUAGE LABEL-ARABIC |
| VC5 | LABEL-SHIPPING, EXCEPT US, US POSSESSIONS, OR JAPAN (DO NOT USE MY18 AND BEYOND) |

| | |
|---|---|
| VFF | VIDEO FORMAT-REGION 1, NTSC |
| VFJ | VIDEO FORMAT-REGION 2, PAL |
| VFK | VIDEO FORMAT-REGION 3, NTSC |
| VFM | VIDEO FORMAT-REGION 4, NTSC |
| VGC | PROTECTOR-FILM, PAINT ETCH PREVENTIVE |
| VH6 | BUMPER FRT-BLACK |
| VH9 | ENVELOPE-OWNER INFO MAN |
| VHM | PROGNOSTIC SYSTEM-VEHICLE HEALTH MANAGEMENT |
| VJG | BUMPER RR-BLACK |
| VJH | BUMPER RR-CHROME |
| VK3 | LICENSE PLATE FRONT-FRT MOUNTING PKG |
| VKU | ACCESSORY-MIRROR CAPS - CHROME |
| VKW | ACCESSORY-ORGANIZER - FRONT CONSOLE |
| VKY | ACCESSORY-DOOR HANDLES - ALTERNATE FINISH - CHROME |
| VL4 | LICENSE PLATE FRONT-FRT MOUNTING PKG, EEC |
| VL5 | LICENSE PLATE-RR MOUNTING PKG, EXPORT |
| VLG | ACCESSORY-CLOSEOUT - REAR FASCIA |
| VLI | ACCESSORY-MAT - TRUNK / CARGO AREA |
| VLQ | HOOK-TOW, CHROME |
| VNX | GRILLE-NONE |
| VPB | ACCESSORY-TONNEAU - RR COMPT - VINYL W/ INTEGRAL CROSSBOW SUPPORTS |
| VPH | VEHICLE PREPARATION-OVERSEAS DELIVERY |
| VPV | HANDLING CHARGE-ARLINGTON ASM TO KERR INDUSTRIES, ARLINGTON, TX AND RETURN TO ARLINGTON ASM |
| VPZ | GRILLE-RADIATOR, SPECIAL, CHROME |
| VQK | ACCESSORY-SPLASH GUARDS - CUSTOM MOLDED |
| VQL | ACCESSORY-FUEL DOOR - DESIGN 1 |
| VQQ | ACCESSORY-CROSS RAILS - ROOF RACK - INTEGRATED - BLACK |

| | |
|---|---|
| VQT | ACCESSORY-TONNEAU - RR COMPT - HARD FOLDING |
| VQY | ACCESSORY-TOW HOOKS - CHROME |
| VQZ | ACCESSORY-EXHAUST TIP - DESIGN 1 |
| VRS | ACCESSORY-CARGO SECURITY SHADE |
| VRV | ACCESSORY-SPLASH GUARDS - CUSTOM MOLDED - PAINTED |
| VT5 | BUMPER RR-COLOR KEYED |
| VT7 | OWNERS MANUAL-ENGLISH LANGUAGE |
| VTB | ACCESSORY-PROTECTOR - REAR BUMPER |
| VTG | ACCESSORY-INTERIOR TRIM KIT |
| VUK | ACCESSORY-TAILGATE LINER - PUBX |
| VV4 | COMMUNICATION EQUIP-MOBILE INTERNET CONNECTIVITY |
| VVJ | CALIBRATION-SPEEDOMETER (180 KPH/112 MPH) |
| VW9 | ACCESSORY-CENTER CAP - WHEEL - DESIGN 3 |
| VWT | ACCESSORY-GRILLE SCREEN - INSECT PROTECTION |
| VXE | CAP-BOX RAIL DELETE |
| VXH | ACCESSORY-ASSIST STEPS - TUBULAR - CHROME - OVAL |
| VXJ | ACCESSORY-ASSIST STEPS - TUBULAR - CHROME - ROUND |
| VXT | VEHICLE TYPE-INCOMPLETE |
| VYU | PROVISIONS-SNOW PLOW PREP |
| VYW | ACCESSORY-FLOOR MATS - PREMIUM CARPET - DESIGN 1 |
| VZ3 | LABEL-MERCURY DISPOSAL NOTIFICATION |
| VZX | ACCESSORY-PUBX BEDLINER |
| W2D | ACCESSORY-CARGO NET |
| W88 | ACCESSORY-SPLASH GUARDS - OVERSIZED |
| WBC | ACCESSORY-EXHAUST UPGRADE - DUAL MODE |
| WEA | APPEARANCE PACKAGE-Z71 PLUS |

| | |
|---|---|
| WH9 | ACCESSORY-CARGO AREA DIVIDER - VERTICAL |
| WJI | SALES PACKAGE-MARY KAY |
| WJP | SALES PACKAGE-MIDNIGHT EDITION |
| WMH | VIN MODEL YEAR-2017 |
| WPK | SALES PACKAGE-SPORT PACK |
| WV9 | MERCHANDISED PKG-VALUE LEADER |
| X88 | MARKET BRAND-CHEVROLET |
| XAA | ACCESSORY-TIRE ALL-P275/55R20 SL 111S BW AL2 VAR 1 |
| XAC | ACCESSORY-TIRE ALL-P275/55R20 SL 111S BW AT VAR 1 |
| XAH | ACCESSORY-TIRE ALL-P285/45R22 SL 110H BW AT -VAR 1 |
| XAV | ACCESSORY-TIRE ALL - P285/45R22 SL 110H BW AL3 -VAR 1 |
| XL7 | FREQUENCIES RATING-315 MHZ, LONG DISTANCE |
| XL8 | FREQUENCIES RATING-433 MHZ |
| Y65 | SALES PACKAGE-ESS 1 |
| Y66 | SALES PACKAGE-ESS 2 |
| Y86 | SALES PACKAGE-ESS 1B |
| Y91 | MERCHANDISED PKG-LUXURY EDITION |
| YE9 | PACKAGE, CONVENIENCE-COMFORT & DECOR LEVEL #3 |
| YF5 | CERTIFICATION-EMISSION, CALIFORNIA |
| YM8 | IDENTIFICATION-LIMITED PERSONALIZATION OPTION (LPO) |
| Z49 | COUNTRY-CANADA |
| Z56 | CHASSIS PACKAGE-POLICE CONVERSION |
| Z5X | MIRROR PROVISIONS-ARABIC LANGUAGE |
| Z60 | CHASSIS PACKAGE-HIGH PERFORMANCE |
| Z6A | PROVISIONS-SPECIAL EQUIPMENT, 5TH WHEEL/ GOOSENECK TRAILER HITCH PREP PACKAGE |
| Z71 | CHASSIS PACKAGE-"OFF ROAD" |
| Z75 | MARKET BRAND-CADILLAC |

| | |
|---|---|
| Z82 | TRAILER PROVISIONS-SPECIAL EQUIPMENT, H.D. |
| Z85 | CHASSIS PACKAGE-INCREASED CAPACITY |
| Z88 | MARKET BRAND-GMC |
| Z95 | CHASSIS PACKAGE-MAGNERIDE |
| ZAK | TIRE SPARE-P265/60R17 SL 108V BW AL3 |
| ZBL | TIRE SPARE-P265/70R17 SL 113 H BW OOR |
| ZBZ | TIRE SPARE-P255/70R17 SL 110H BW ALS |
| ZHQ | TIRE SPARE-LT245/75R17 E 121/118 R BW ALS |
| ZQO | TIRE SPARE-LT235/80R17 E 120/117 Q BW ALS |
| ZW7 | CHASSIS PACKAGE-PREMIUM SMOOTH RIDE |
| ZW9 | BODY EQUIPMENT-BASE BODY OR CHASSIS |
| ZWF | TIRE SPARE-LT265/70R18 E 124/121 S BW ALS |
| ZXT | TIRE SPARE-LT265/70R17/E BW TL |
| ZXU | TIRE SPARE-LT265/70R17 E 121/118 S BW AT |
| ZY1 | COLOR COMBINATION-SOLID |
| ZYD | SALES PACKAGE-HIGH DESERT |
| ZZT | TIRE SPARE-LT235/80R17 E 120/117 Q BW AT |

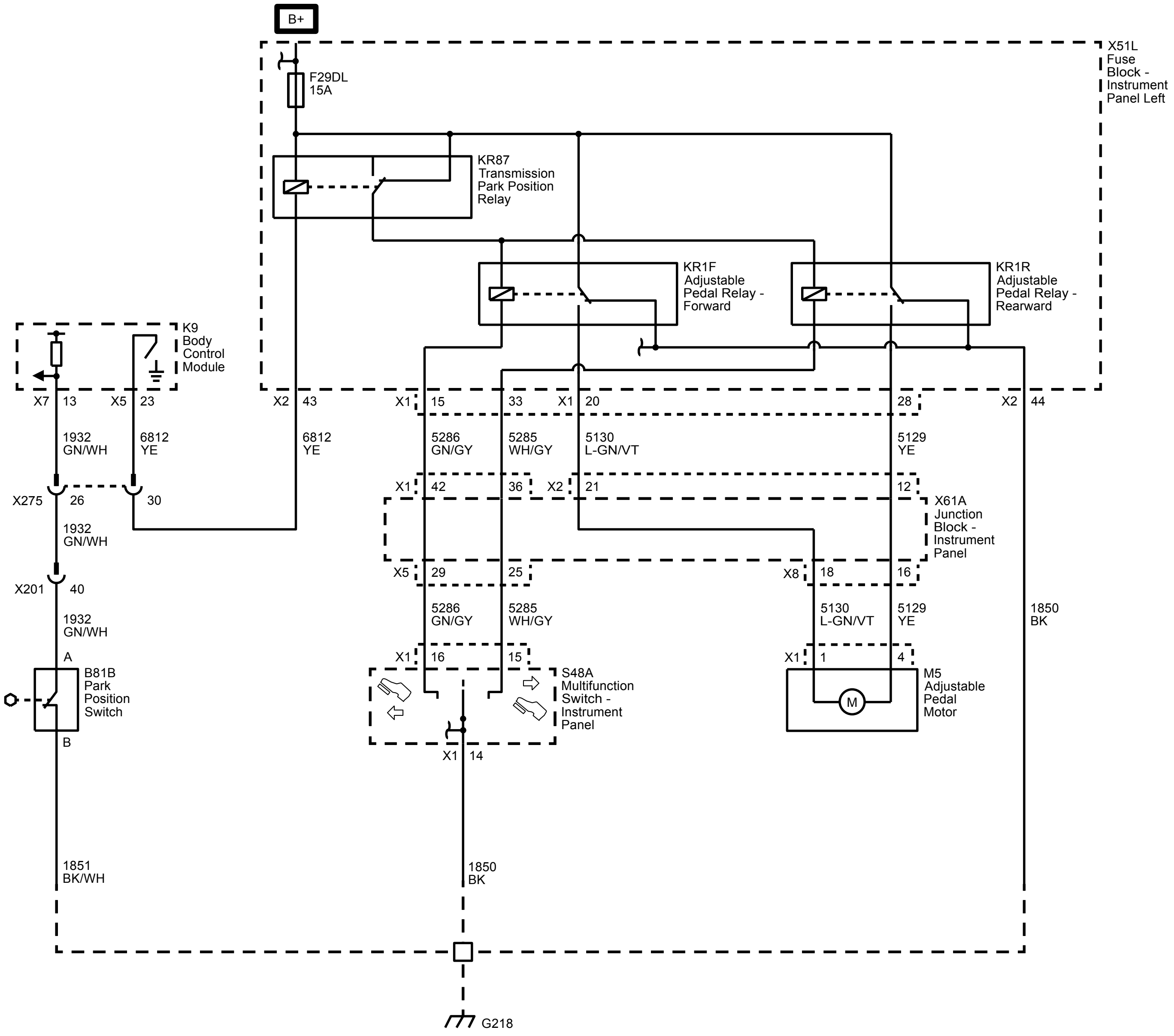
# Body Systems

## Adjustable Pedals

### Schematic and Routing Diagrams

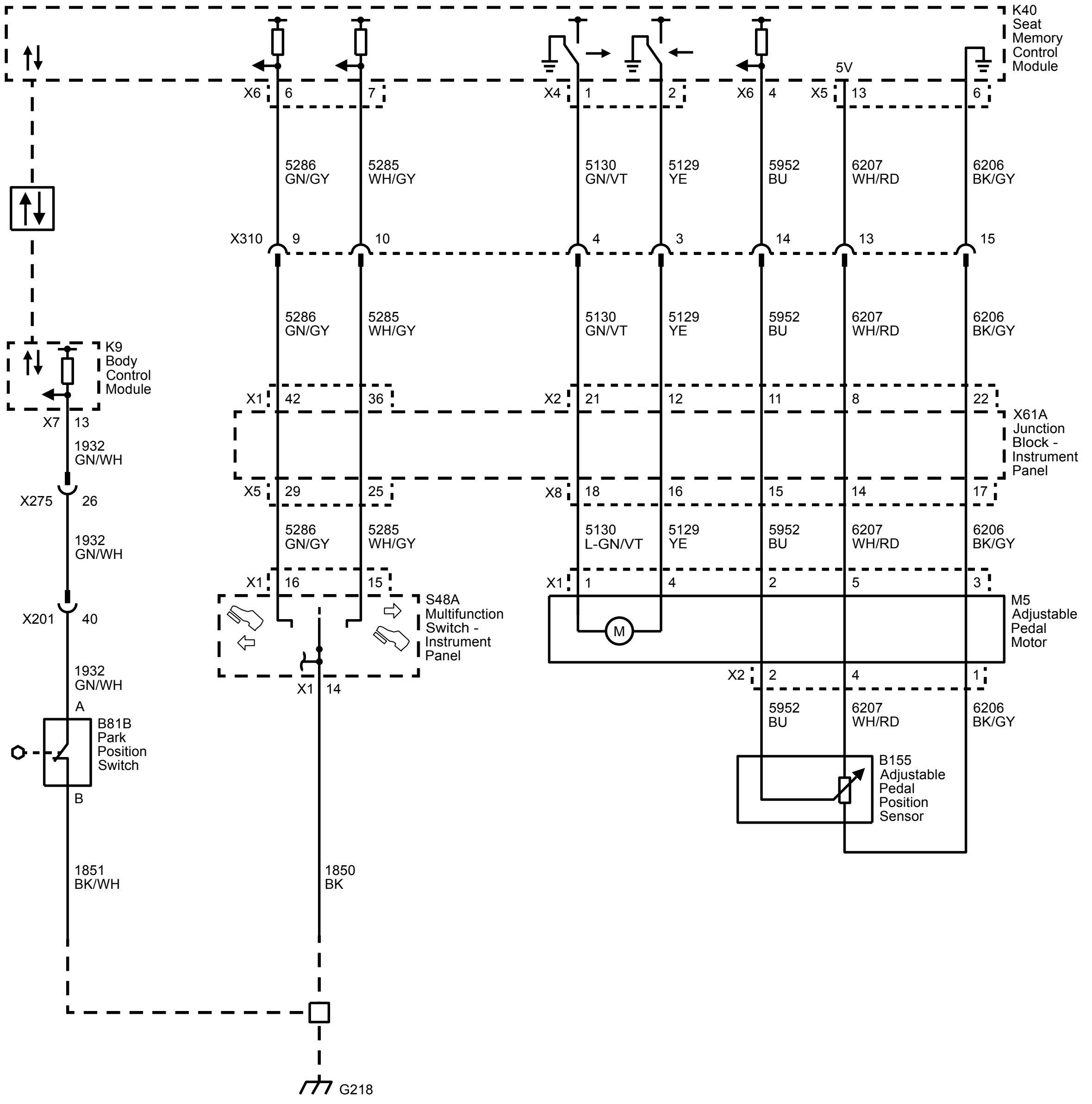
### Adjustable Pedal Schematics

**Adjustable Pedals (without A45)**



B+
F29DL
15A
X51L
Fuse
Block -
Instrument
Panel Left
KR87
Transmission
Park Position
Relay
KR1F
Adjustable
Pedal Relay -
Forward
KR1R
Adjustable
Pedal Relay -
Rearward
K9
Body
Control
Module
X7 13
X5 23
X2 43
X1 15
33
X1 20
28
X2 44
1932
GN/WH
6812
YE
6812
YE
5286
GN/GY
5285
WH/GY
5130
L-GN/VT
5129
YE
X275 26
30
X1 42
36
X2 21
12
X61A
Junction
Block -
Instrument
Panel
1932
GN/WH
X201 40
X5 29
25
X8 18
16
1932
GN/WH
5286
GN/GY
5285
WH/GY
5130
L-GN/VT
5129
YE
1850
BK
A
B81B
Park
Position
Switch
B
X1 16
15
S48A
Multifunction
Switch -
Instrument
Panel
X1 14
X1 1
4
M
M5
Adjustable
Pedal
Motor
1851
BK/WH
1850
BK
G218

# Adjustable Pedals (A45)


K40
Seat
Memory
Control
Module
X6
6
7
X4
1
2
X6
4
X5
5V
13
6
5286
GN/GY
5285
WH/GY
5130
GN/VT
5129
YE
5952
BU
6207
WH/RD
6206
BK/GY
X310
9
10
4
3
14
13
15
5286
GN/GY
5285
WH/GY
5130
GN/VT
5129
YE
5952
BU
6207
WH/RD
6206
BK/GY
K9
Body
Control
Module
X7
13
X1
42
36
X2
21
12
11
8
22
X61A
Junction
Block -
Instrument
Panel
X5
29
25
X8
18
16
15
14
17
1932
GN/WH
X275
26
1932
GN/WH
5286
GN/GY
5285
WH/GY
5130
L-GN/VT
5129
YE
5952
BU
6207
WH/RD
6206
BK/GY
X1
16
15
S48A
Multifunction
Switch -
Instrument
Panel
X1
1
4
2
5
3
M5
Adjustable
Pedal
Motor
M
X201
40
X1
14
X2
2
4
1
1932
GN/WH
A
B81B
Park
Position
Switch
B
5952
BU
6207
WH/RD
6206
BK/GY
B155
Adjustable
Pedal
Position
Sensor
1851
BK/WH
1850
BK
G218

# Description and Operation

## Adjustable Pedals Description and Operation (Without A45)

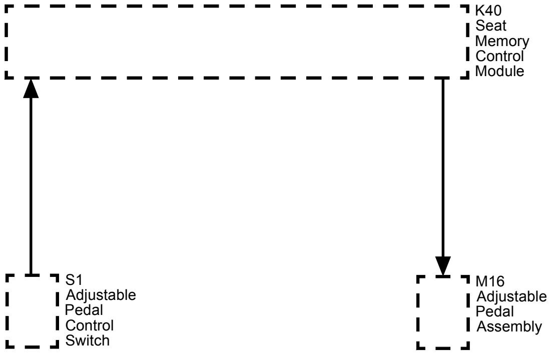
The adjustable pedals system is controlled by the adjustable pedals switch and the adjustable pedals relay and operation can occur only while the transmission selector lever is in the park position. The adjustable pedals assembly is moved forward or rearward by a motor which is fixed to the brake pedal actuator with a drive cable to the accelerator pedal actuator. In an inactive state both of the outputs to the motor are closed to ground. The adjustable pedals switch controls the adjustable pedals relay by applying battery voltage to one of the coils. The adjustable pedals motor is bidirectional and the direction of the pedal assembly travel is determined by which of the relay output circuits is switched to battery positive voltage while the other remains grounded. The adjustable pedals system uses the same motor and sensor assembly even when it is not equipped with the memory seats. The adjustable pedals position sensor is not used and does not have any circuits connected. The adjustable pedals position manually controlled by activating the switch in the forward or rearward direction until the desired position is reached.

## Adjustable Pedals Description and Operation (With A45)

### Adjustable Pedals System Components

The adjustable pedals system consists of the following components:

- The multifunction switch – instrument panel
- The seat memory control module
- The adjustable pedal motor
- The adjustable pedal position sensor



### Adjustable Pedals System Operation

The adjustable pedals are not operable when the cruise control is engaged.

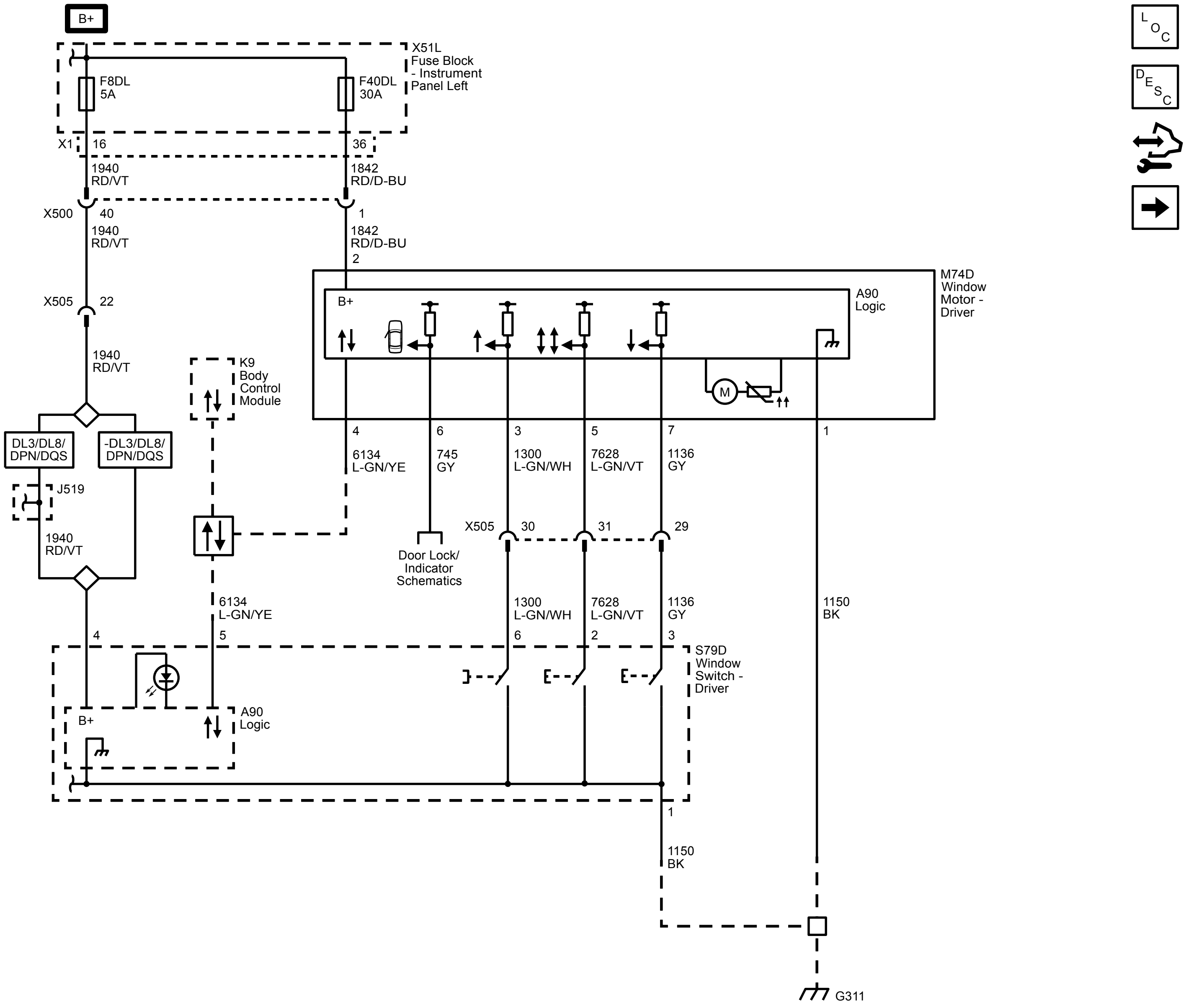
The adjustable pedal system is controlled by the seat memory control module. The adjustable pedals are moved forward or backward by a motor which is fastened to the brake pedal assembly with drive cables to the brake and accelerator pedal actuators.

The adjustable pedal motor is controlled by the seat memory control module through two motor control circuits. In an inactive state both control circuits are closed to ground within the module. The seat memory control module drives the adjustable pedal motor in the forward or rearward direction by closing the appropriate control circuit to battery voltage. The adjustable pedal motor is bidirectional and the direction of the pedal assembly travel is determined by which of the motor control circuits is switched to battery voltage while the other remains grounded.

The adjustable pedal forward and rearward switches are inputs to the module. Battery voltage is supplied to the switch from the seat memory control module. When the switch is operated to the forward or rearward direction the forward or rearward switch signal circuit is closed to the battery voltage circuit. Battery voltage on a switch signal circuit indicates to the seat memory control module that the switch is active.

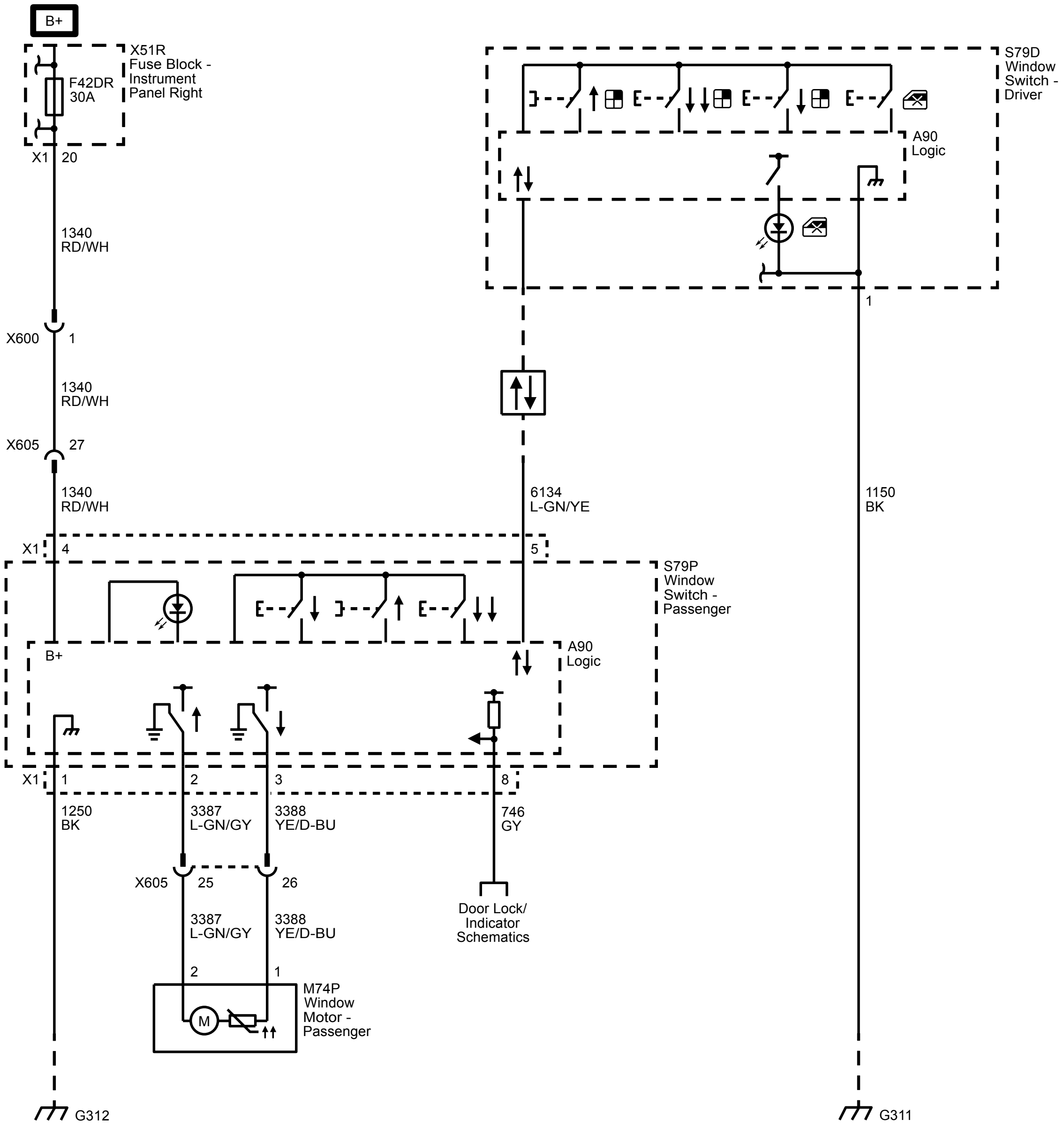
The seat memory control module monitors the locations of the adjustable pedals using the adjustable pedal position sensor. The position sensor is supplied with a 5 V reference and ground circuit from the seat memory control module. The position sensor signal circuit is referenced from ground within the module. The position sensor signal circuit voltage levels are used by the seat memory control module to determine the positions of the adjustable pedals when storing or recalling memory position settings.

**Driver Door (A31)**



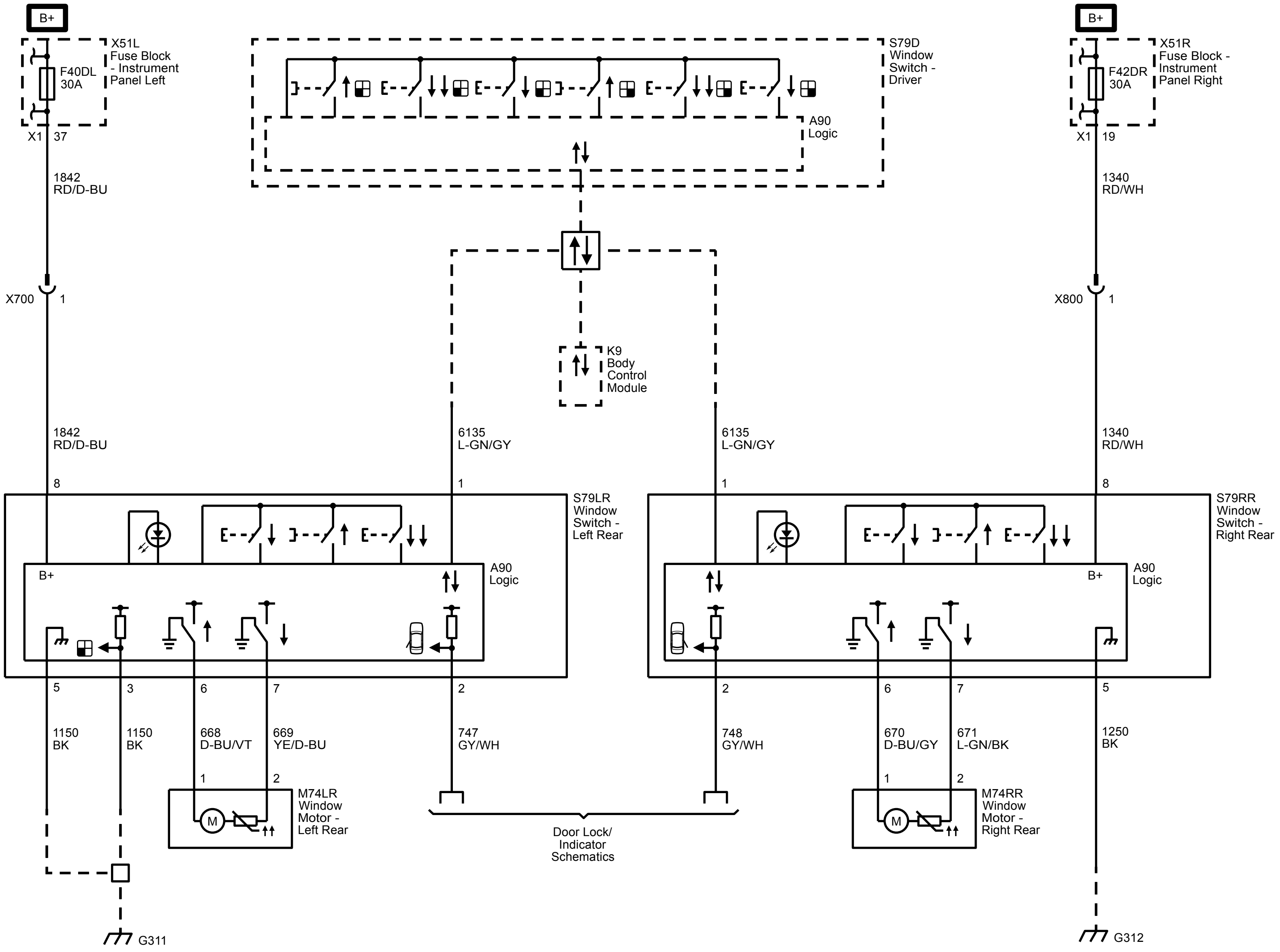
B+
X51L Fuse Block - Instrument Panel Left
F8DL 5A
F40DL 30A
X1
16
36
1940 RD/VT
1842 RD/D-BU
X500
40
1
1940 RD/VT
1842 RD/D-BU
2
X505
22
1940 RD/VT
M74D Window Motor - Driver
A90 Logic
B+
M
K9 Body Control Module
DL3/DL8/ DPN/DQS
-DL3/DL8/ DPN/DQS
J519
1940 RD/VT
4
6
3
5
7
1
6134 L-GN/YE
745 GY
1300 L-GN/WH
7628 L-GN/VT
1136 GY
X505
30
31
29
Door Lock/ Indicator Schematics
6134 L-GN/YE
1300 L-GN/WH
7628 L-GN/VT
1136 GY
1150 BK
4
5
6
2
3
S79D Window Switch - Driver
A90 Logic
B+
1
1150 BK
G311

## Passenger Door (A31)

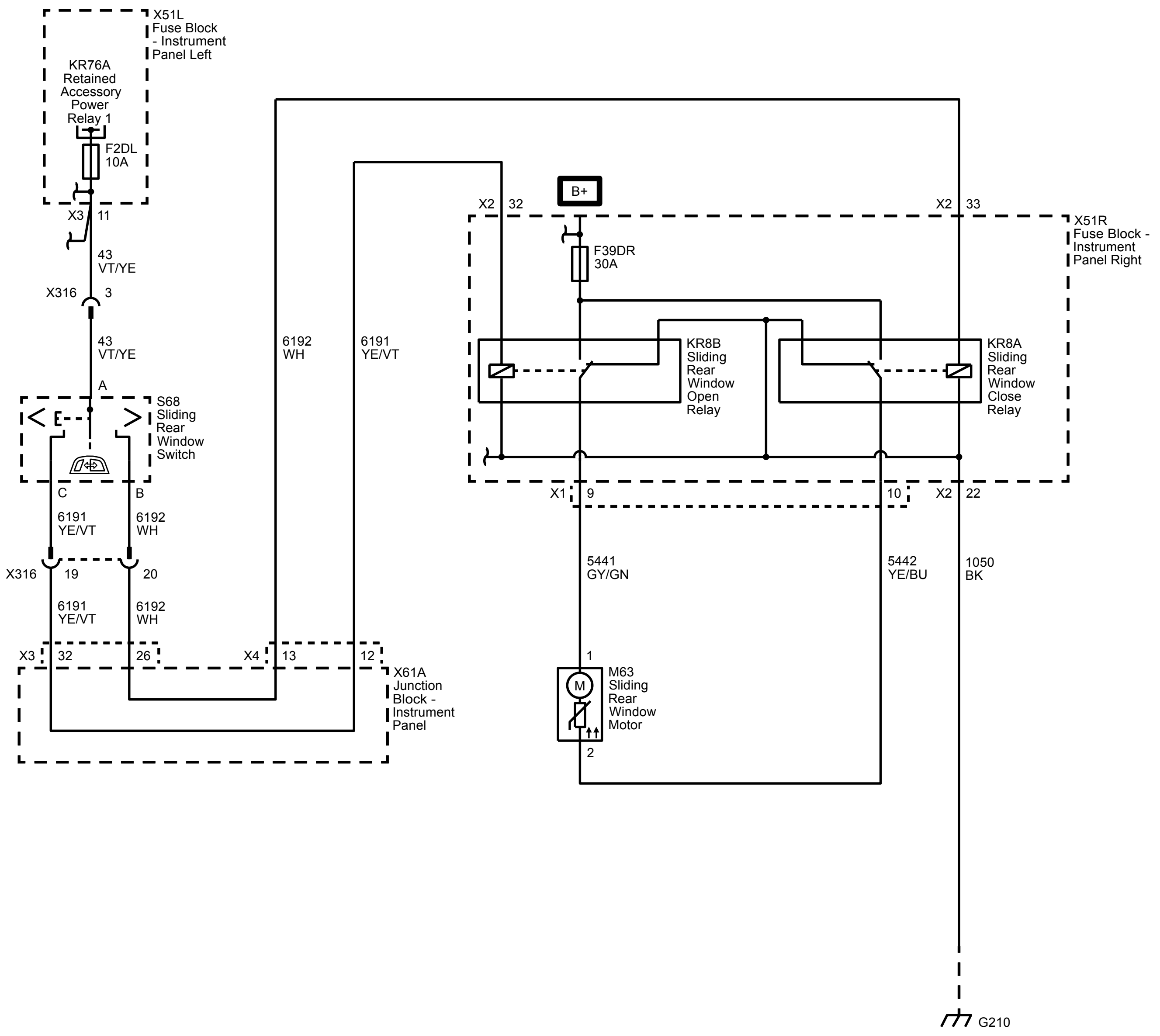

B+
X51R
Fuse Block -
Instrument
Panel Right
F42DR
30A
X1
20
1340
RD/WH
X600
1
1340
RD/WH
X605
27
1340
RD/WH
S79D
Window
Switch -
Driver
A90
Logic
1
6134
L-GN/YE
1150
BK
X1
4
5
S79P
Window
Switch -
Passenger
B+
A90
Logic
X1
1
2
3
8
1250
BK
3387
L-GN/GY
3388
YE/D-BU
746
GY
X605
25
26
3387
L-GN/GY
3388
YE/D-BU
Door Lock/
Indicator
Schematics
2
1
M74P
Window
Motor -
Passenger
M
G312
G311

LOC
DESC

## Rear Doors (Extended or Crew Cab)

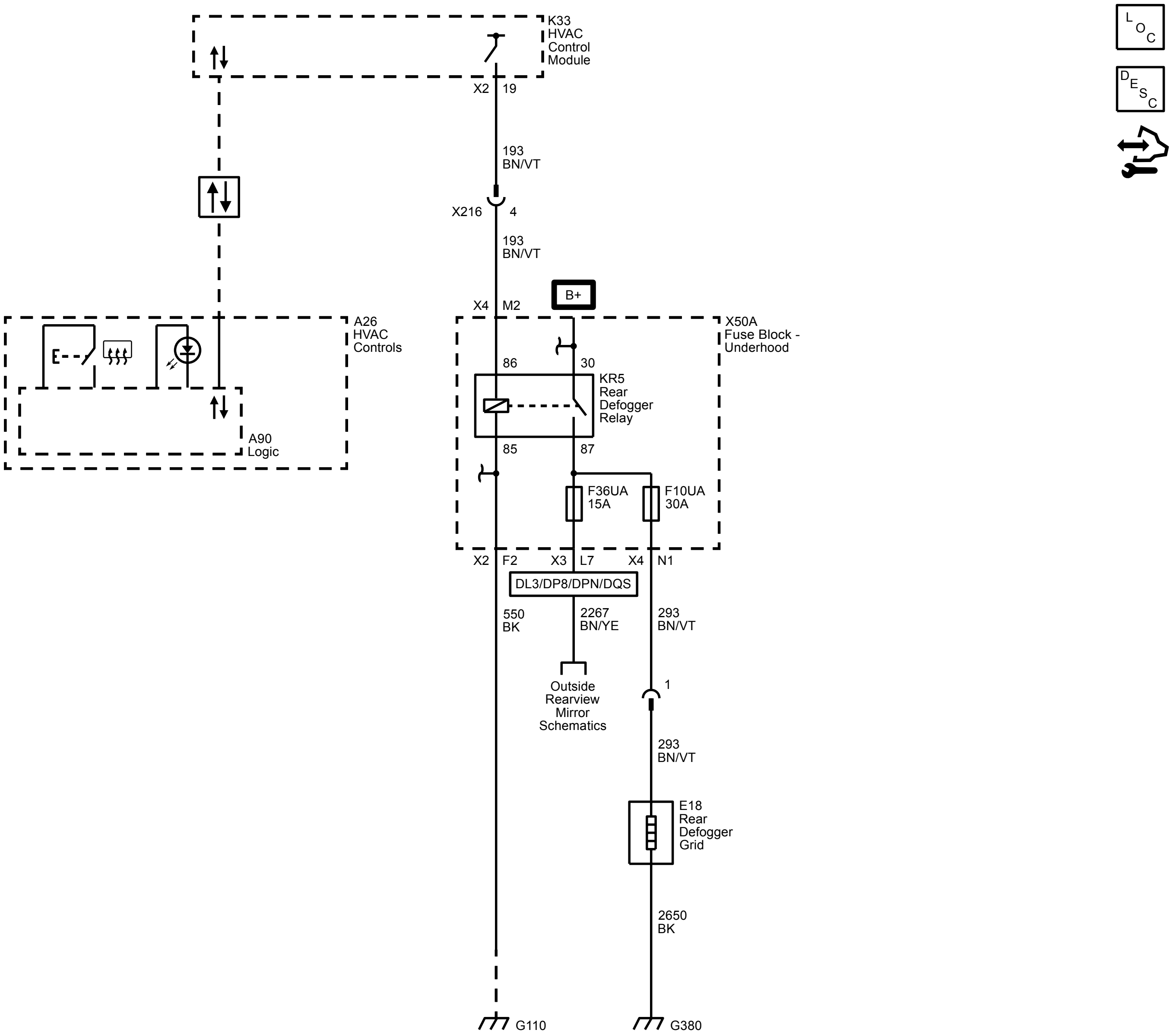

B+
X51L
Fuse Block
- Instrument
Panel Left
F40DL
30A
X1 37
1842
RD/D-BU
X700 1
1842
RD/D-BU
8
S79D
Window
Switch -
Driver
A90
Logic
K9
Body
Control
Module
6135
L-GN/GY
1
6135
L-GN/GY
1
B+
X51R
Fuse Block -
Instrument
Panel Right
F42DR
30A
X1 19
1340
RD/WH
X800 1
1340
RD/WH
8
S79LR
Window
Switch -
Left Rear
A90
Logic
B+
S79RR
Window
Switch -
Right Rear
A90
Logic
B+
5
3
6
7
2
1150
BK
1150
BK
668
D-BU/VT
669
YE/D-BU
747
GY/WH
1
2
M
M74LR
Window
Motor -
Left Rear
G311
Door Lock/
Indicator
Schematics
2
6
7
5
748
GY/WH
670
D-BU/GY
671
L-GN/BK
1250
BK
1
2
M
M74RR
Window
Motor -
Right Rear
G312

## Rear Sliding Window (A48)


X51L
Fuse Block - Instrument Panel Left
KR76A Retained Accessory Power Relay 1
F2DL 10A
X3 11
43 VT/YE
X316 3
43 VT/YE
A
S68 Sliding Rear Window Switch
C
B
6191 YE/VT
6192 WH
X316 19
20
6191 YE/VT
6192 WH
X3 32
26
X4 13
12
X61A Junction Block - Instrument Panel
6192 WH
6191 YE/VT
B+
X2 32
X2 33
F39DR 30A
X51R Fuse Block - Instrument Panel Right
KR8B Sliding Rear Window Open Relay
KR8A Sliding Rear Window Close Relay
X1 9
10
X2 22
5441 GY/GN
5442 YE/BU
1050 BK
1
M
M63 Sliding Rear Window Motor
2
G210

## Defogger Schematics

### Defogger


K33
HVAC
Control
Module
X2 19
193
BN/VT
X216 4
193
BN/VT
B+
X4 M2
X50A
Fuse Block -
Underhood
A26
HVAC
Controls
A90
Logic
86
30
KR5
Rear
Defogger
Relay
85
87
F36UA
15A
F10UA
30A
X2 F2
X3 L7
X4 N1
DL3/DP8/DPN/DQS
550
BK
2267
BN/YE
293
BN/VT
Outside
Rearview
Mirror
Schematics
1
293
BN/VT
E18
Rear
Defogger
Grid
2650
BK
G110
G380
LOC
DESC

# Description and Operation

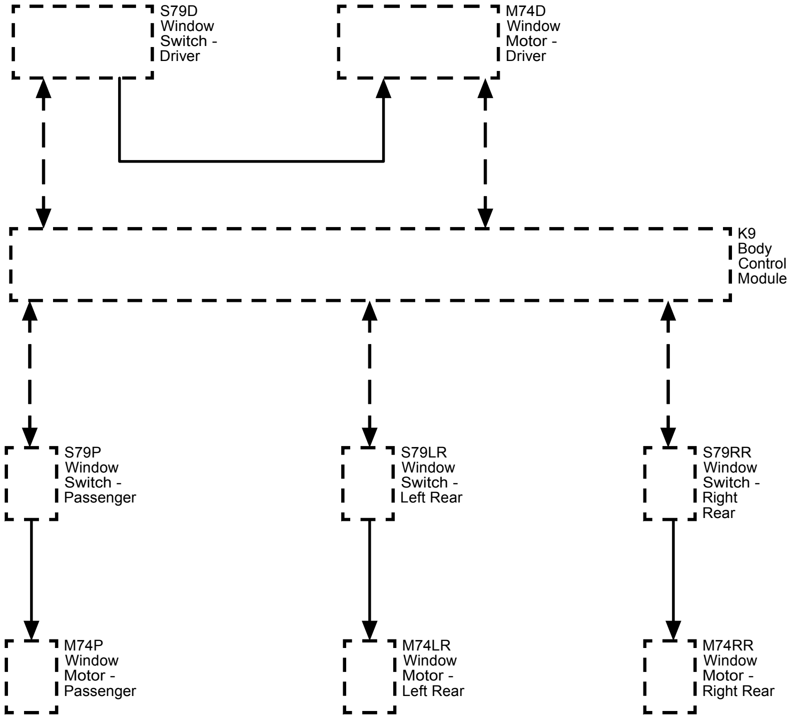
## Power Windows Description and Operation

### Power Windows System Components

The power window system consists of the following components:

- Driver window switch
- Passenger window switch
- Left rear window switch (Extended Cab and Crew Cab)
- Right rear window switch (Extended Cab and Crew Cab)
- Window motors in each of the doors
- Sliding rear window switch
- Sliding rear window relays
- Sliding rear window motor
- 30A Fuse
- Body control module (BCM)

### 14 Power Windows AXG-AER-AEQ Block Diagram


S79D Window Switch - Driver
M74D Window Motor - Driver
K9 Body Control Module
S79P Window Switch - Passenger
S79LR Window Switch - Left Rear
S79RR Window Switch - Right Rear
M74P Window Motor - Passenger
M74LR Window Motor - Left Rear
M74RR Window Motor - Right Rear

### Driver Express Up and Express Down Power Window

The driver door contains a window motor is smart motor that will detect excessive resistance while performing the express up function and automatically reverse direction to prevent injury to any occupants that may become trapped between the closing window and the door frame. The automatic reverse safety feature can be overridden by pulling and holding the window switch.

The logic circuit within the window motor monitors the up, down and express signal circuits which are normally equal to B+ voltage. When a switch is used on the window switch, the contacts close causing a voltage drop within the appropriate signal circuit. The window motor will detect the voltage drop and will command the window to move in the direction requested.

The driver window switch communicates to the BCM by a serial data circuit. When the driver wishes to control the passenger window, the driver will use the appropriate switch on the driver window switch. When this switch is used, a serial data message is sent to the BCM requesting the passenger window motor command, the BCM will then send a serial data message to the passenger window motor which will then move in the direction requested

### Passenger, Left Rear and Right Rear Express Down Power Windows

For the passenger, right rear and left rear doors, when their window switch is pressed in the down position, battery positive voltage is applied to their respective window motor control circuit and ground to the other window motor control circuit causing that window to open. When the individual window switch is pulled in the up position, voltage and ground is applied to the window motor in the opposite direction causing that window to close. The return path to ground is supplied through the inactive control circuit being normally grounded through the window switch.

Each passenger and rear window switch communicates to the BCM by a serial data circuit. When the driver wishes to control the passenger, left rear or right rear window, the driver will use the appropriate switch on the driver window switch. When this switch is used, a serial data message is sent to the BCM requesting a window motor command, the BCM will then send a serial data message to the appropriate door window switch which will then command that window to move in the direction requested.

### Rear Window and Rear Door Lockout Operation (Extended Cab and Crew Cab)

The driver power window switch contains a window lockout switch, when the driver presses the window lockout switch, a serial data message is sent to the BCM which will send a disable command to the rear window motors, the rear window motors will then ignore all voltage drops in the window motor control circuits caused by using the rear window switches. The rear windows will still function normally from the switches on the driver window switch.

### Power Sliding Rear Window

NOTE: Power window lockout switch disables left rear and right rear passenger window switches only and has no effect on the operation of the power sliding window switch.

The power sliding rear window motor is controlled from the rear window OPEN/CLOSE switch through OPEN and CLOSE relays. The OPEN/CLOSE switch is supplied voltage from the body control module accessory voltage output circuit. When the switch is pressed in the OPEN or CLOSED position the OPEN or CLOSED relay coil will be supplied accessory voltage and energized through the appropriate relay control circuit. While the OPEN and CLOSE relays are in a de-energized state both motor control circuits will be closed to ground. When one of the relays is energized its motor control circuit will be closed to the battery voltage supply circuit and the other motor control circuit will remain grounded through the de-energized relay.

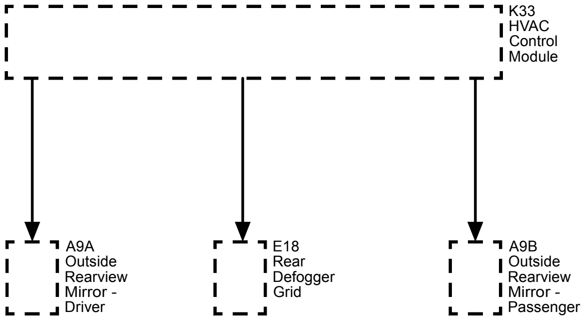
# Rear Window Defogger Description and Operation

## Rear Window Defogger System Components

The rear window defogger system consists of the following components:

- HVAC control module
- Rear defogger relay
- Rear defogger grid
- 40A fuse

## Rear Window Defogger Block Diagram



## Rear Window Defogger Operation

The rear defog control system utilizes a single zone backlight design, driven with a single relay configuration. Additionally, up to two outside rear view mirrors can be heated if equipped. A switch for the customer to control the system is provided within the HVAC control module, also included in the HVAC control module is an indicator to inform the customer with the current state of the system. The system is only operational when engine is running or during remote start.

Pressing the heated rear window switch on the HVAC control module causes the HVAC control module to provide voltage to the coil side of the rear defogger relay, this will energize the relay causing the relay switch contacts to close allowing B+ voltage to flow through the rear defogger grid control circuit to the rear defogger grid.

When the rear heated window switch is pressed and the engine is running, the rear defog control system will remain active for 10 minutes. After the initial cycle has lapsed, pressing the switch again will continue rear window defogger operation, but the cycle will only last 5 minutes.

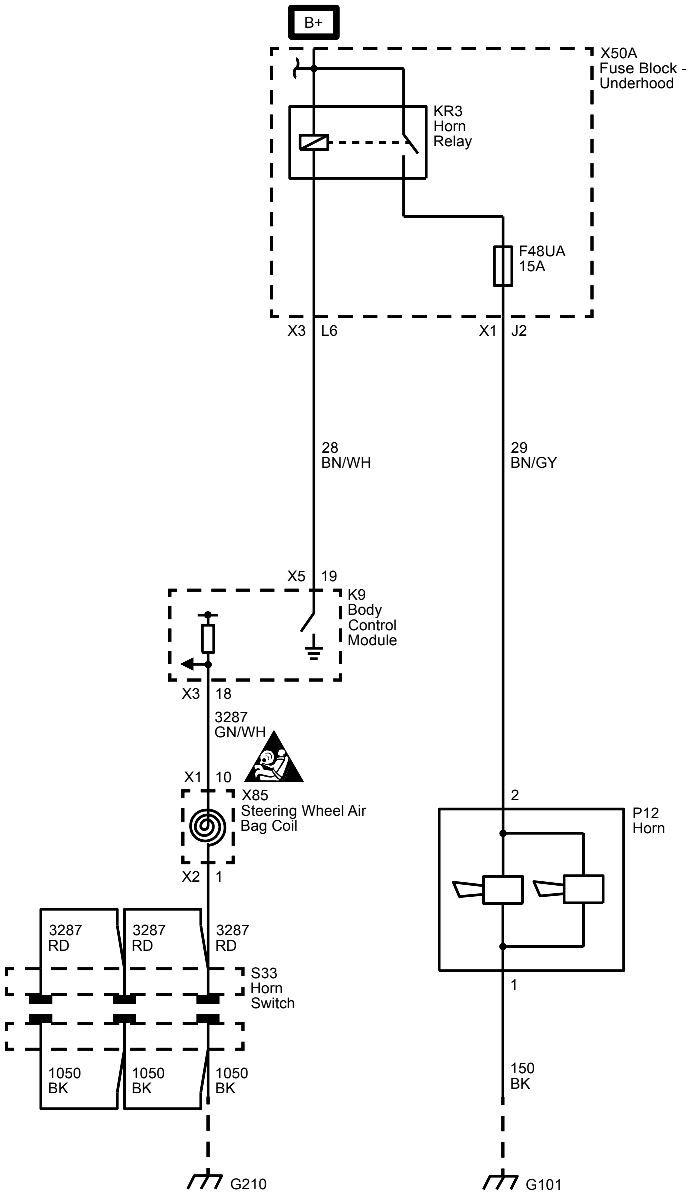
# Body Systems

## Horns and Pedestrian Alerts

### Schematic and Routing Diagrams

#### Horn Schematics

**Horn**


B+
X50A
Fuse Block -
Underhood
KR3
Horn
Relay
F48UA
15A
X3
L6
X1
J2
28
BN/WH
29
BN/GY
X5
19
K9
Body
Control
Module
X3
18
3287
GN/WH
X1
10
X85
Steering Wheel Air
Bag Coil
X2
1
2
P12
Horn
3287
RD
3287
RD
3287
RD
S33
Horn
Switch
1050
BK
1050
BK
1050
BK
1
150
BK
G210
G101

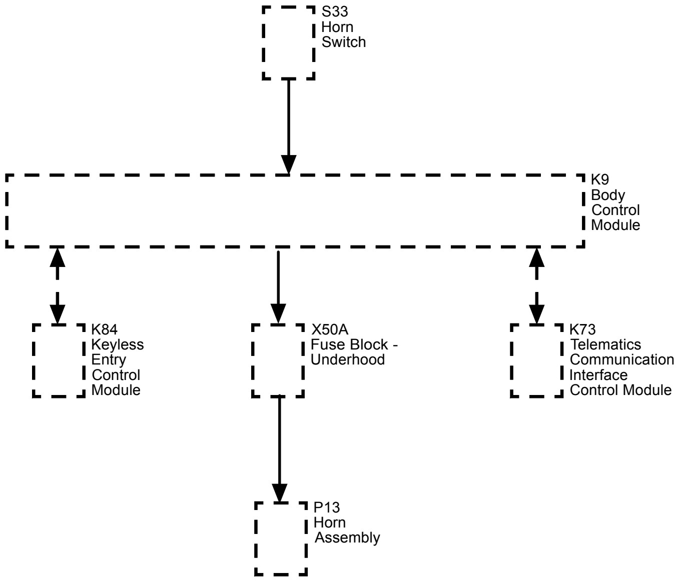
# Description and Operation

## Horns System Description and Operation

### System Description

The horn system consists of the following components:

- HORN fuse
- Horn relay
- Horn switch
- Horn assembly
- Body control module (BCM)



### System Operation

The vehicle horn system is activated under the following conditions:

- When the horn switch is depressed
- The BCM commands the horns ON under any of the following conditions:
  - When the content theft deterrent system detects a vehicle intrusion—For further information refer to Theft Systems Description and Operation.
  - When the panic button is depressed on the remote control door lock transmitter—For further information refer to Keyless Entry System Description and Operation.
  - When the keyless entry system is used to lock the vehicle, a horn chirp may sound to notify the driver that the vehicle has been locked. The notification feature may be enabled or disabled through personalization. For further information refer to Keyless Entry System Description and Operation.
  - When the OnStar® system is used to sound the horns if equipped—For further information, refer to OnStar Description and Operation.

### Circuit Operation

Battery positive voltage is applied at all times to the horn relay coil and the horn relay switch. Pressing either of the horn switches applies ground to the horn relay control circuit. The BCM may also apply ground to the horn relay control circuit as described above. When the horn relay control circuit is grounded, the horn relay is energized and battery positive voltage is applied to the horns through the horn control circuit. The horns sound as long as ground is applied to the horn relay control circuit.

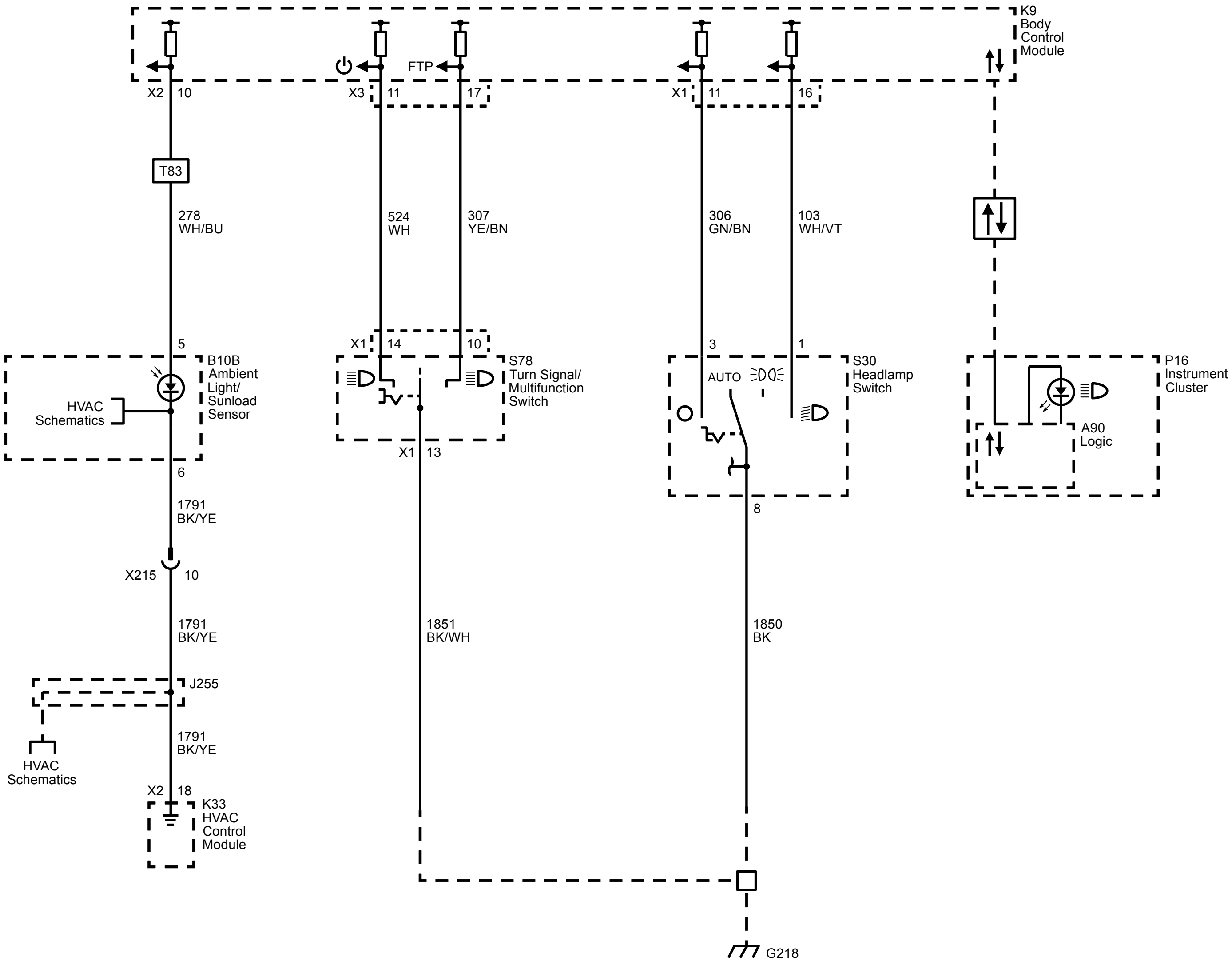
# Body Systems

## Lighting

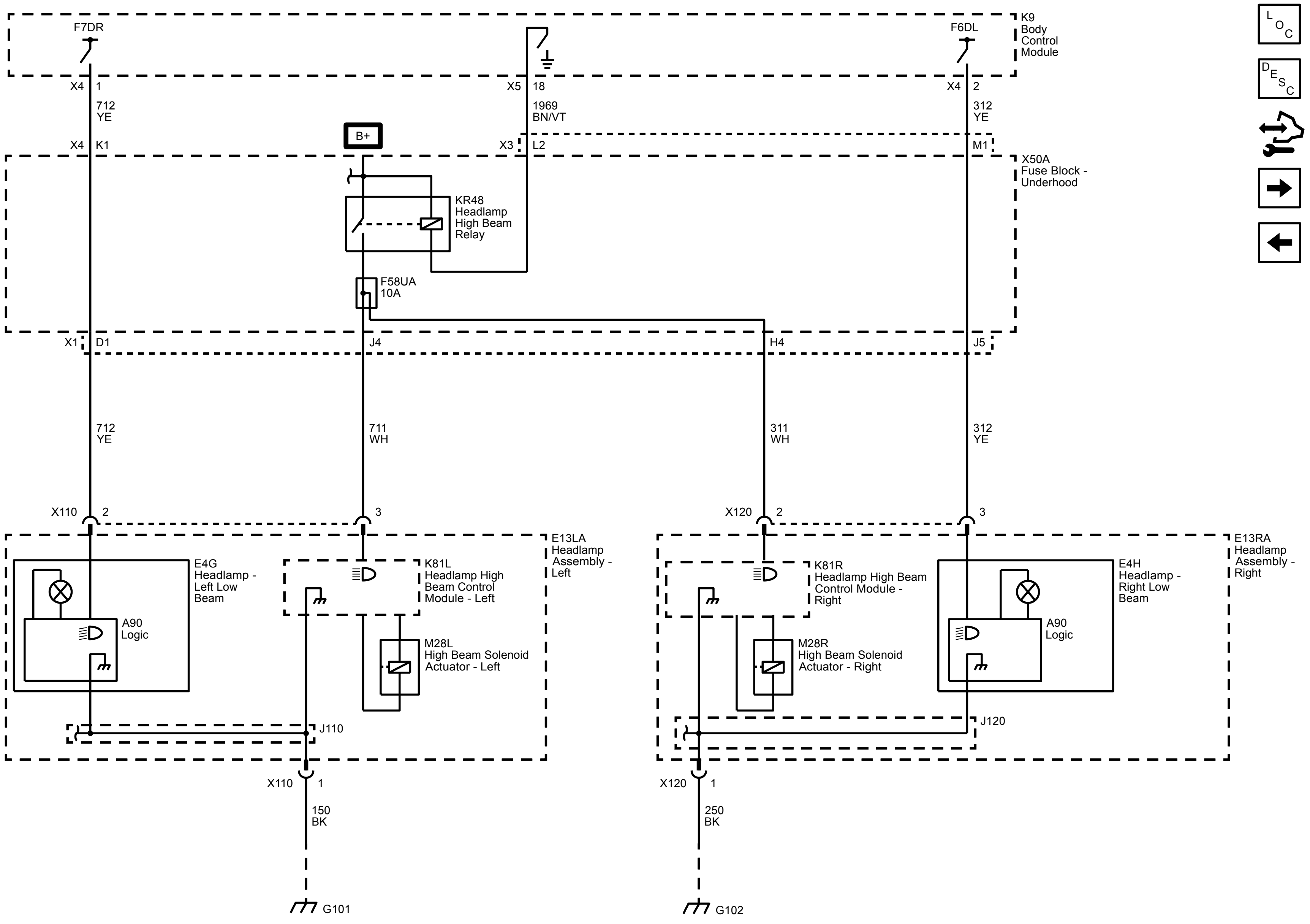
### Schematic and Routing Diagrams

#### Headlights/Daytime Running Lights (DRL) Schematics

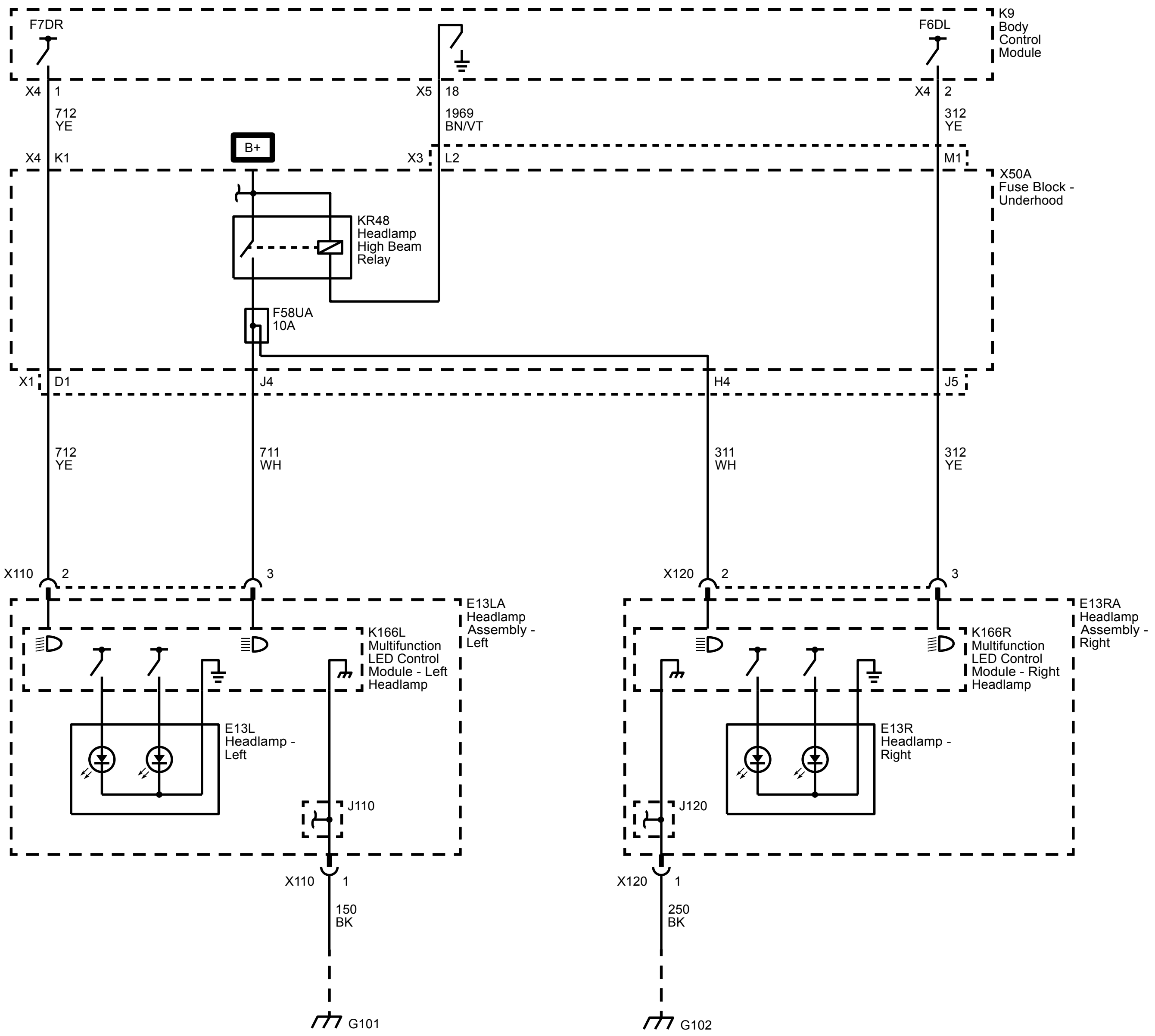
**Controls**


K9
Body
Control
Module
X2 10
X3 11 17
FTP
X1 11 16
T83
278
WH/BU
524
WH
307
YE/BN
306
GN/BN
103
WH/VT
5
B10B
Ambient
Light/
Sunload
Sensor
HVAC
Schematics
6
1791
BK/YE
X215 10
1791
BK/YE
J255
HVAC
Schematics
1791
BK/YE
X2 18
K33
HVAC
Control
Module
X1 14 10
S78
Turn Signal/
Multifunction
Switch
X1 13
1851
BK/WH
3 1
S30
Headlamp
Switch
AUTO
8
1850
BK
G218
P16
Instrument
Cluster
A90
Logic

# Headlamps (1500 with X88 with T4F)


F7DR
F6DL
K9
Body
Control
Module
X4
1
X5
18
X4
2
712
YE
1969
BN/VT
312
YE
B+
X4
K1
X3
L2
M1
X50A
Fuse Block -
Underhood
KR48
Headlamp
High Beam
Relay
F58UA
10A
X1
D1
J4
H4
J5
712
YE
711
WH
311
WH
312
YE
X110
2
3
X120
2
3
E13LA
Headlamp
Assembly -
Left
E4G
Headlamp -
Left Low
Beam
A90
Logic
K81L
Headlamp High
Beam Control
Module - Left
M28L
High Beam Solenoid
Actuator - Left
J110
K81R
Headlamp High Beam
Control Module -
Right
M28R
High Beam Solenoid
Actuator - Right
E4H
Headlamp -
Right Low
Beam
A90
Logic
E13RA
Headlamp
Assembly -
Right
J120
X110
1
150
BK
G101
X120
1
250
BK
G102
LOC
DESC

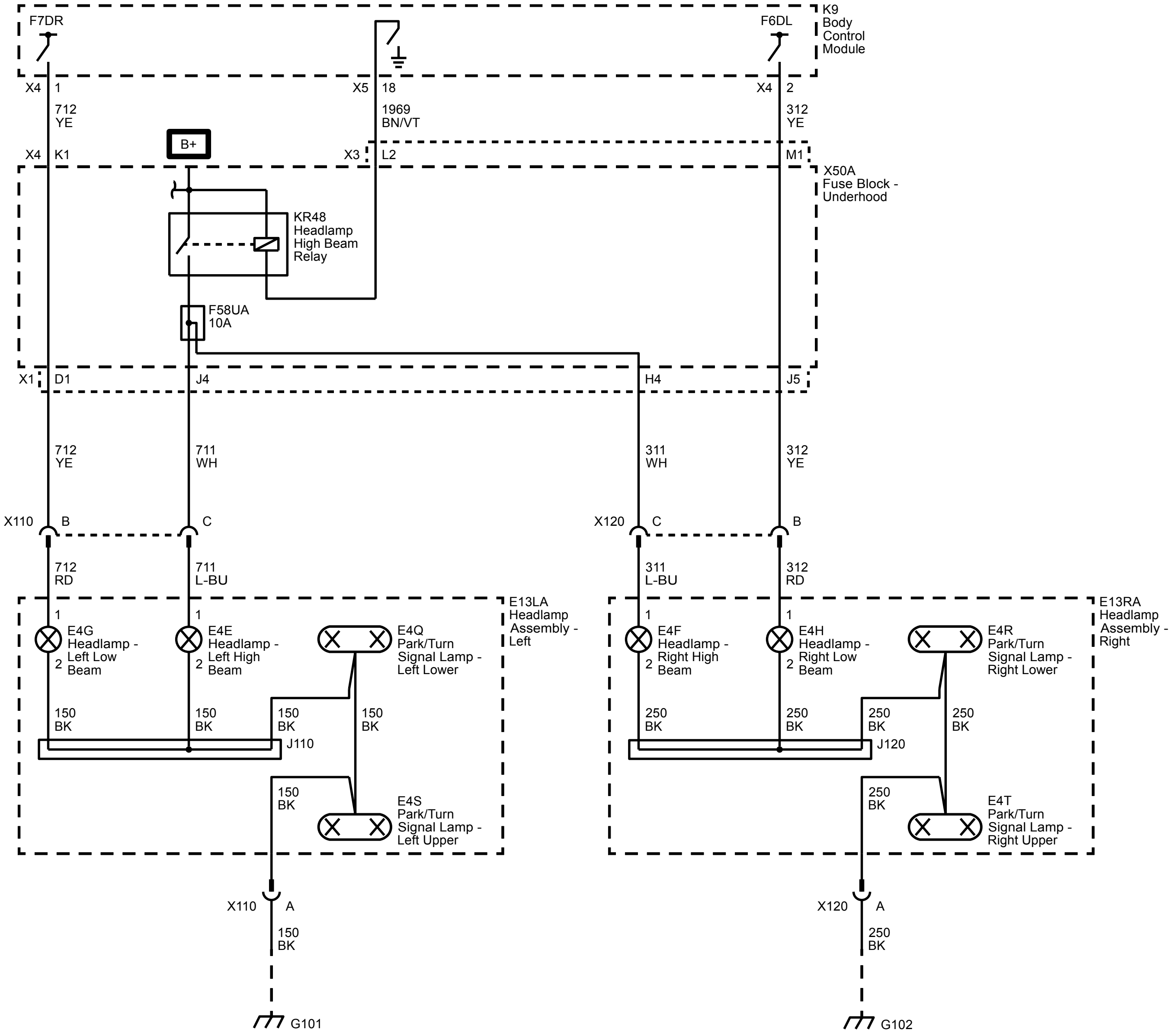
## Headlamps (1500 with X88 without T4F)



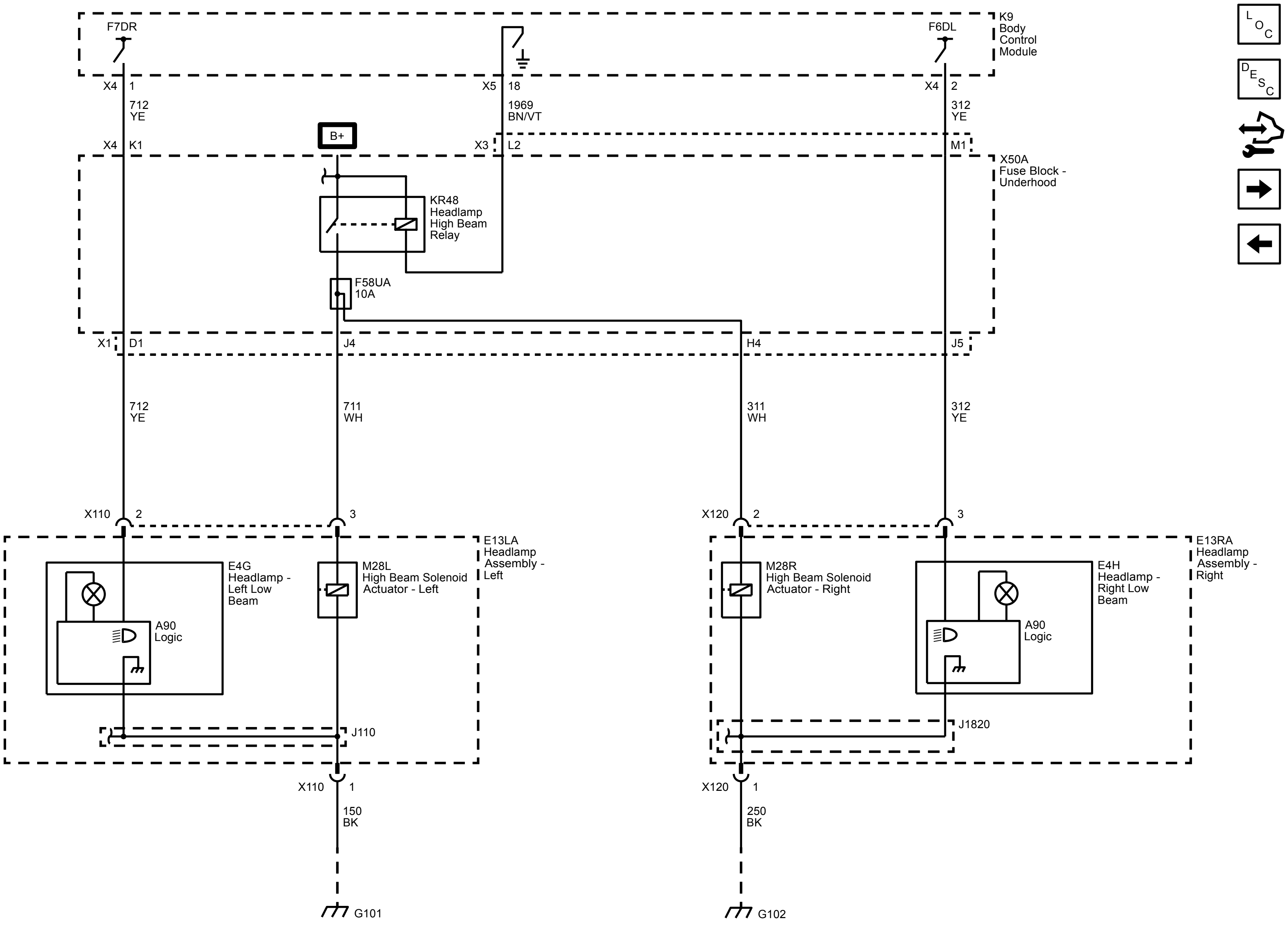
F7DR
F6DL
K9
Body
Control
Module
X4
1
X5
18
X4
2
712
YE
1969
BN/VT
312
YE
B+
X4
K1
X3
L2
M1
X50A
Fuse Block -
Underhood
KR48
Headlamp
High Beam
Relay
F58UA
10A
X1
D1
J4
H4
J5
712
YE
711
WH
311
WH
312
YE
X110
2
3
X120
2
3
E13LA
Headlamp
Assembly -
Left
K166L
Multifunction
LED Control
Module - Left
Headlamp
E13L
Headlamp -
Left
J110
E13RA
Headlamp
Assembly -
Right
K166R
Multifunction
LED Control
Module - Right
Headlamp
E13R
Headlamp -
Right
J120
X110
1
150
BK
X120
1
250
BK
G101
G102

# Headlamps (2500/3500 with X88)

LOC
DESC

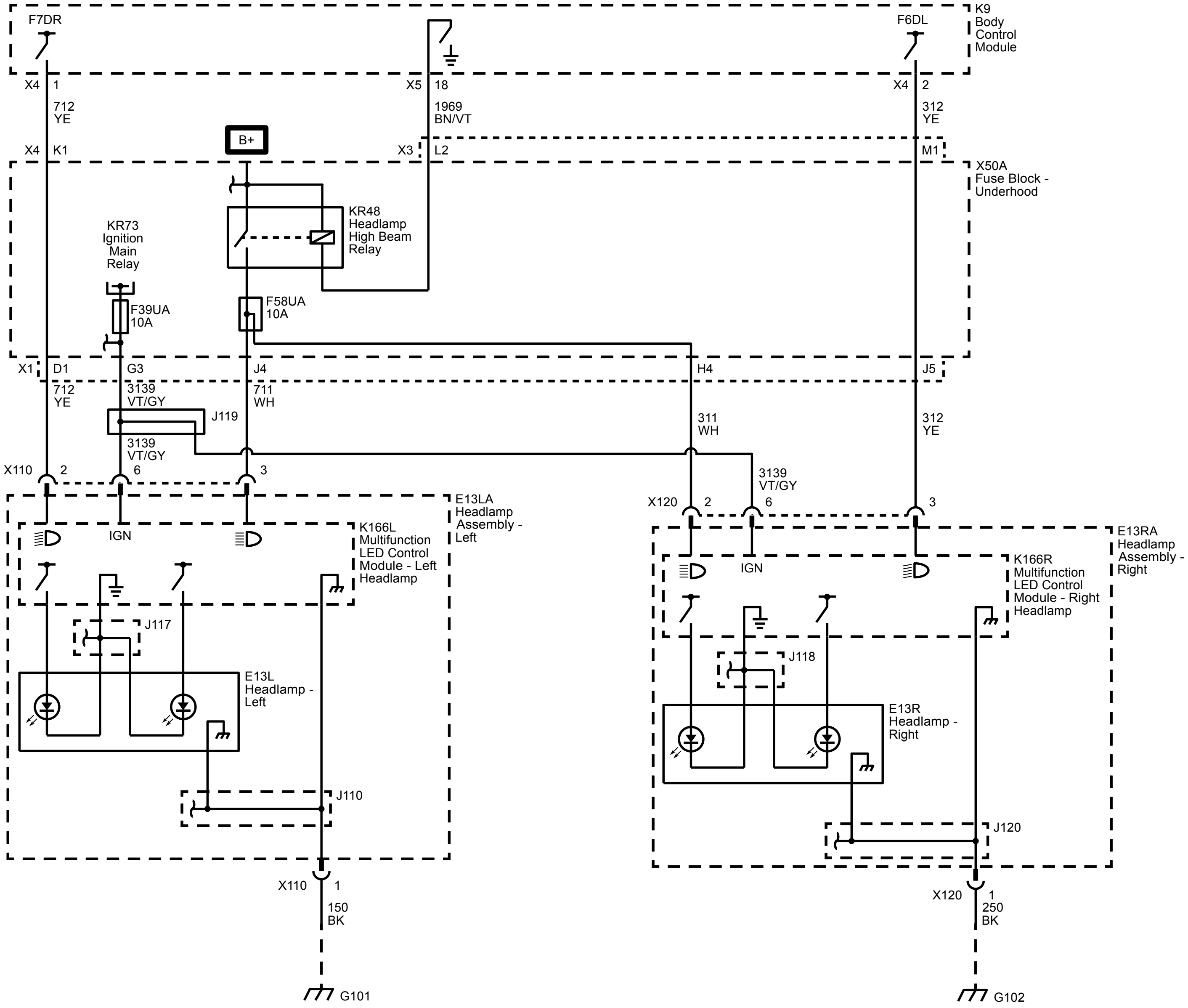

F7DR
F6DL
K9
Body
Control
Module
X4 1
X5 18
X4 2
712
YE
1969
BN/VT
312
YE
B+
X4 K1
X3 L2
M1
X50A
Fuse Block -
Underhood
KR48
Headlamp
High Beam
Relay
F58UA
10A
X1 D1
J4
H4
J5
712
YE
711
WH
311
WH
312
YE
X110 B
C
X120 C
B
712
RD
711
L-BU
311
L-BU
312
RD
E13LA
Headlamp
Assembly -
Left
1
E4G
Headlamp -
Left Low
Beam
2
1
E4E
Headlamp -
Left High
Beam
2
E4Q
Park/Turn
Signal Lamp -
Left Lower
150
BK
150
BK
150
BK
150
BK
J110
150
BK
E4S
Park/Turn
Signal Lamp -
Left Upper
E13RA
Headlamp
Assembly -
Right
1
E4F
Headlamp -
Right High
Beam
2
1
E4H
Headlamp -
Right Low
Beam
2
E4R
Park/Turn
Signal Lamp -
Right Lower
250
BK
250
BK
250
BK
250
BK
J120
250
BK
E4T
Park/Turn
Signal Lamp -
Right Upper
X110 A
150
BK
G101
X120 A
250
BK
G102

# Headlamps (1500/Z88 and T4F)

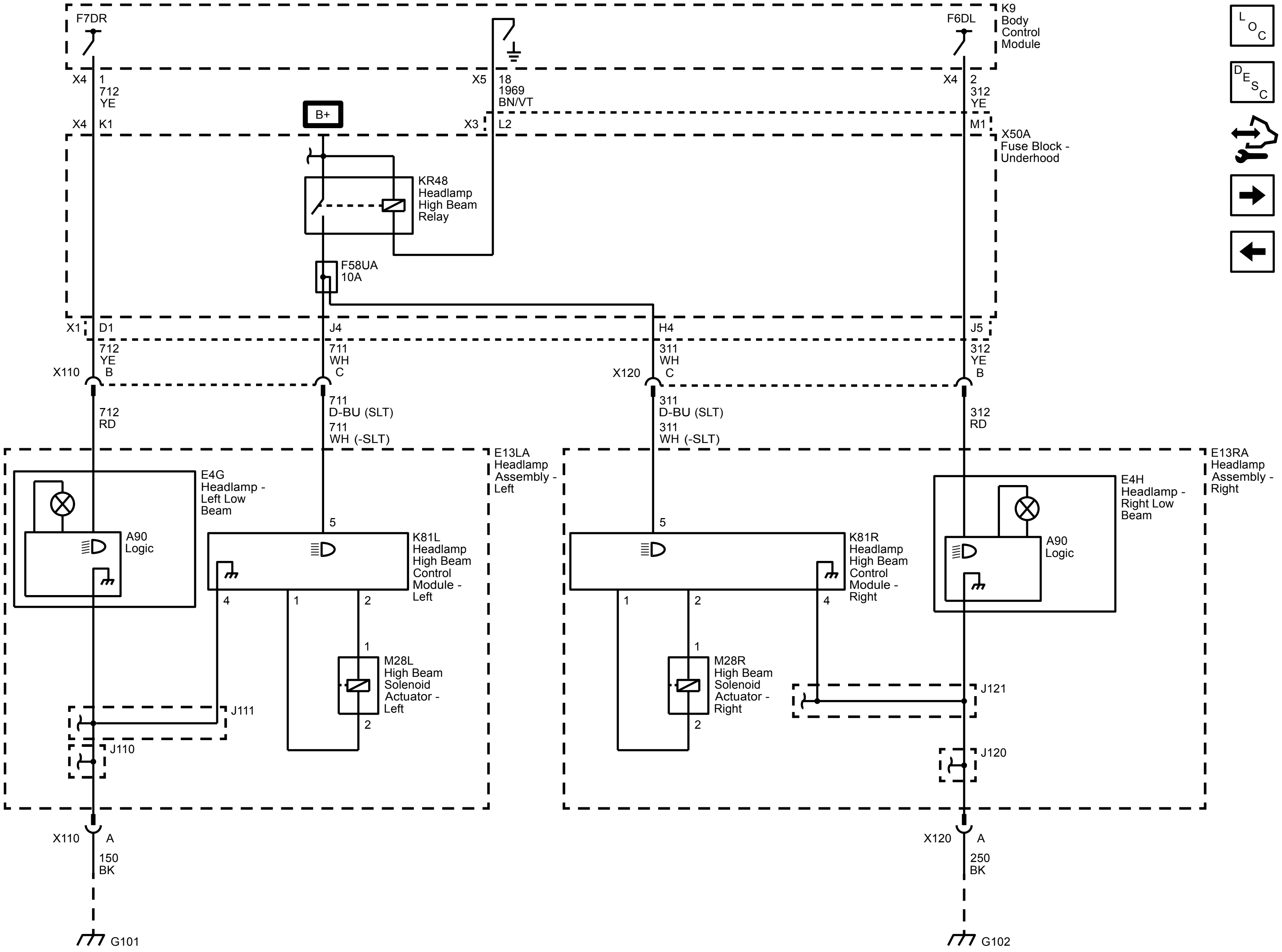


F7DR
F6DL
K9
Body
Control
Module
X4 1
712
YE
X5 18
1969
BN/VT
X4 2
312
YE
B+
X4 K1
X3 L2
M1
X50A
Fuse Block -
Underhood
KR48
Headlamp
High Beam
Relay
F58UA
10A
X1 D1
J4
H4
J5
712
YE
711
WH
311
WH
312
YE
X110 2
3
X120 2
3
E13LA
Headlamp
Assembly -
Left
E4G
Headlamp -
Left Low
Beam
A90
Logic
M28L
High Beam Solenoid
Actuator - Left
J110
M28R
High Beam Solenoid
Actuator - Right
E4H
Headlamp -
Right Low
Beam
A90
Logic
E13RA
Headlamp
Assembly -
Right
J1820
X110 1
150
BK
G101
X120 1
250
BK
G102
LOC
DESC

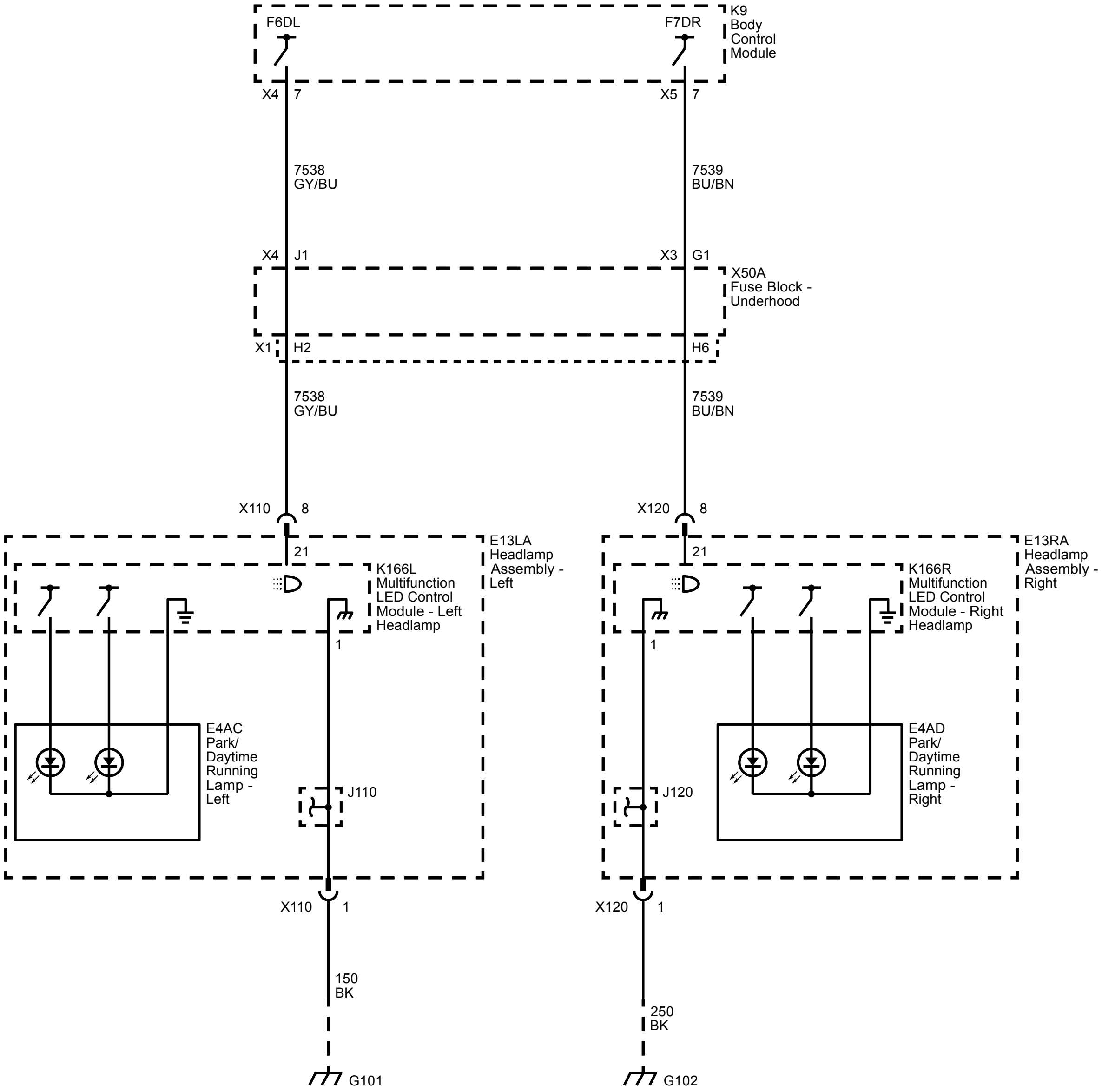
## Headlamps (1500/Z88 without T4F)


F7DR
F6DL
K9
Body
Control
Module
X4
1
712
YE
X5
18
1969
BN/VT
X4
2
312
YE
X4
K1
B+
X3
L2
M1
X50A
Fuse Block -
Underhood
KR48
Headlamp
High Beam
Relay
KR73
Ignition
Main
Relay
F39UA
10A
F58UA
10A
X1
D1
G3
J4
H4
J5
712
YE
3139
VT/GY
711
WH
J119
3139
VT/GY
311
WH
312
YE
X110
2
6
3
3139
VT/GY
X120
2
6
3
E13LA
Headlamp
Assembly -
Left
K166L
Multifunction
LED Control
Module - Left
Headlamp
IGN
J117
E13L
Headlamp -
Left
J110
X110
1
150
BK
G101
E13RA
Headlamp
Assembly -
Right
K166R
Multifunction
LED Control
Module - Right
Headlamp
IGN
J118
E13R
Headlamp -
Right
J120
X120
1
250
BK
G102

## Headlamps (2500/3500 with Z88)


F7DR
F6DL
K9
Body
Control
Module
X4 1
712
YE
X5 18
1969
BN/VT
X4 2
312
YE
B+
X4 K1
X3 L2
M1
X50A
Fuse Block -
Underhood
KR48
Headlamp
High Beam
Relay
F58UA
10A
X1 D1
J4
H4
J5
712
YE
X110 B
711
WH
C
X120
311
WH
C
312
YE
B
712
RD
711
D-BU (SLT)
711
WH (-SLT)
311
D-BU (SLT)
311
WH (-SLT)
312
RD
E13LA
Headlamp
Assembly -
Left
E13RA
Headlamp
Assembly -
Right
E4G
Headlamp -
Left Low
Beam
A90
Logic
5
K81L
Headlamp
High Beam
Control
Module -
Left
4
1
2
M28L
High Beam
Solenoid
Actuator -
Left
J111
J110
5
K81R
Headlamp
High Beam
Control
Module -
Right
1
2
4
M28R
High Beam
Solenoid
Actuator -
Right
E4H
Headlamp -
Right Low
Beam
A90
Logic
J121
J120
X110 A
150
BK
G101
X120 A
250
BK
G102

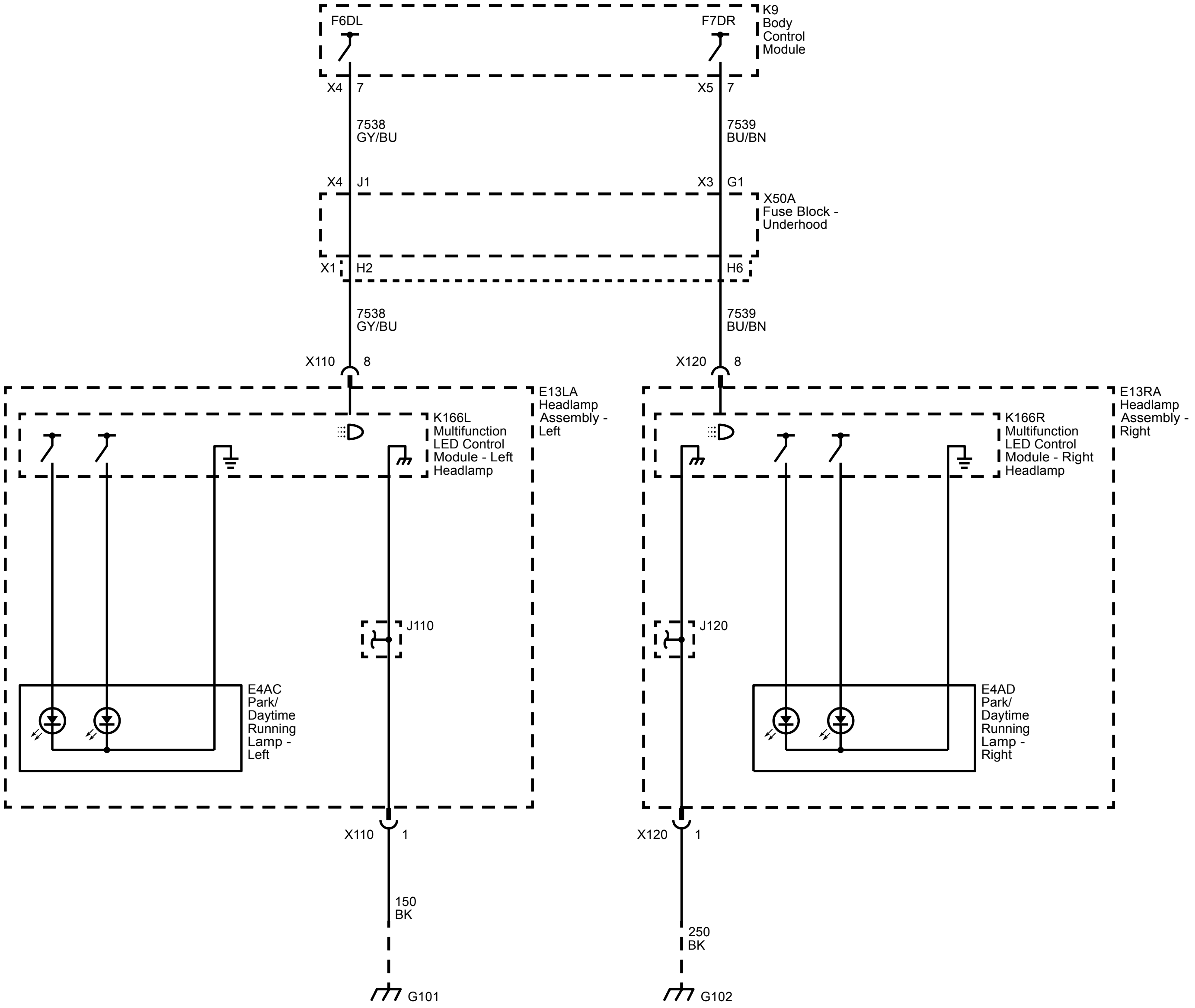
## Daytime Running Lamps (1500 with X88)



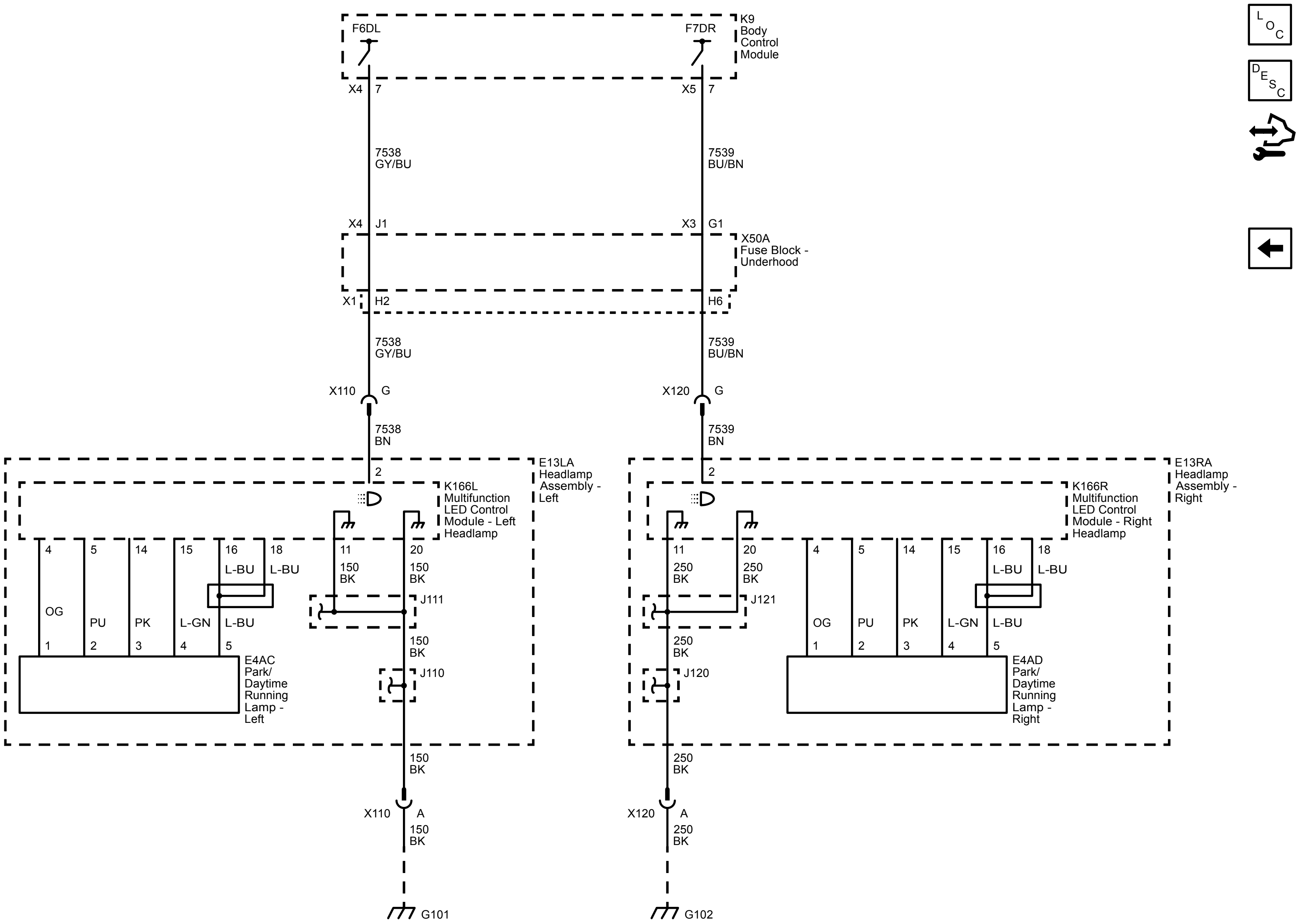
K9
Body
Control
Module
F6DL
F7DR
X4 7
X5 7
7538
GY/BU
7539
BU/BN
X4 J1
X3 G1
X50A
Fuse Block -
Underhood
X1 H2
H6
7538
GY/BU
7539
BU/BN
X110 8
X120 8
E13LA
Headlamp
Assembly -
Left
21
K166L
Multifunction
LED Control
Module - Left
Headlamp
1
E4AC
Park/
Daytime
Running
Lamp -
Left
J110
X110 1
150
BK
G101
E13RA
Headlamp
Assembly -
Right
21
K166R
Multifunction
LED Control
Module - Right
Headlamp
1
E4AD
Park/
Daytime
Running
Lamp -
Right
J120
X120 1
250
BK
G102

# Daytime Running Lamps (1500/Z88)

LOC
DESC

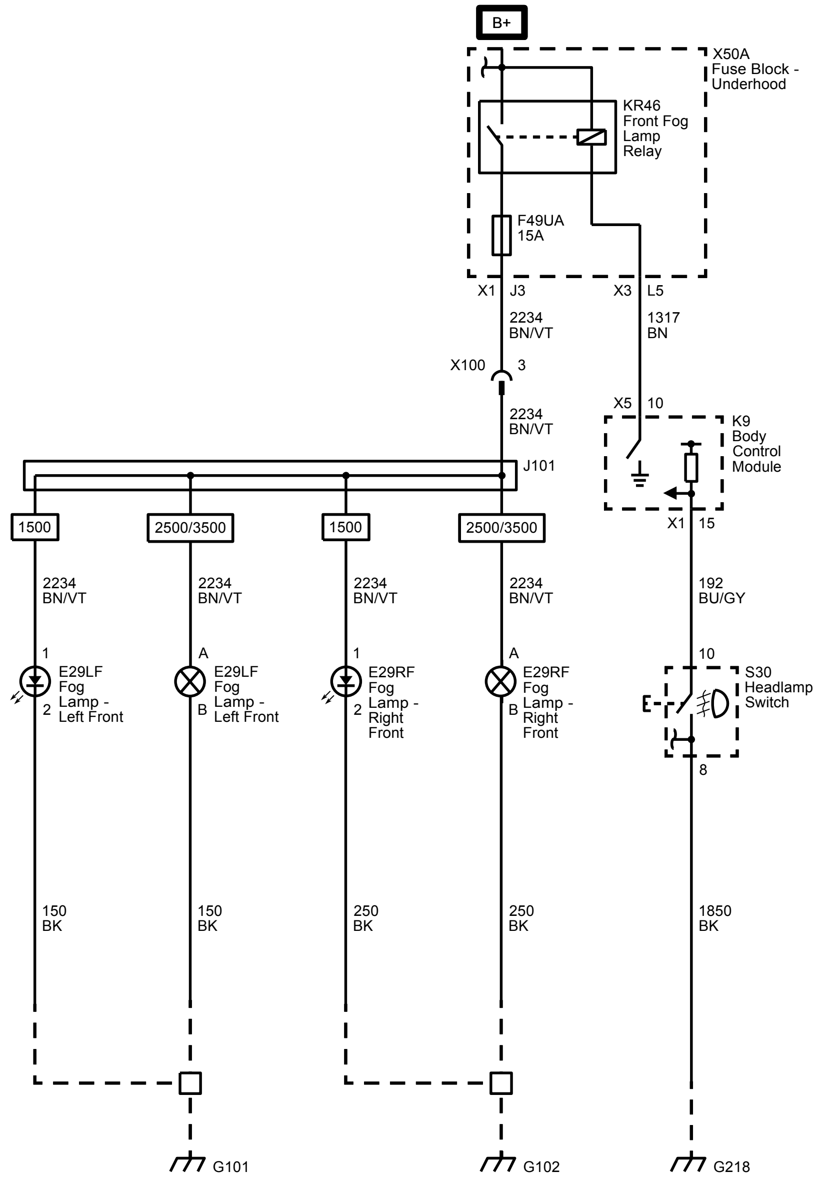

F6DL
F7DR
K9
Body
Control
Module
X4 7
X5 7
7538
GY/BU
7539
BU/BN
X4 J1
X3 G1
X50A
Fuse Block -
Underhood
X1 H2
H6
7538
GY/BU
7539
BU/BN
X110 8
X120 8
E13LA
Headlamp
Assembly -
Left
K166L
Multifunction
LED Control
Module - Left
Headlamp
E13RA
Headlamp
Assembly -
Right
K166R
Multifunction
LED Control
Module - Right
Headlamp
J110
J120
E4AC
Park/
Daytime
Running
Lamp -
Left
E4AD
Park/
Daytime
Running
Lamp -
Right
X110 1
X120 1
150
BK
250
BK
G101
G102

# Daytime Running Lamps (2500/3500 with Z88 and SLT)


F6DL
F7DR
K9 Body Control Module
X4 7
X5 7
7538 GY/BU
7539 BU/BN
X4 J1
X3 G1
X50A Fuse Block - Underhood
X1 H2
H6
7538 GY/BU
7539 BU/BN
X110 G
X120 G
7538 BN
7539 BN
E13LA Headlamp Assembly - Left
E13RA Headlamp Assembly - Right
2
2
K166L Multifunction LED Control Module - Left Headlamp
K166R Multifunction LED Control Module - Right Headlamp
4 5 14 15 16 18 11 20
L-BU L-BU
150 BK 150 BK
J111
OG PU PK L-GN L-BU
1 2 3 4 5
E4AC Park/ Daytime Running Lamp - Left
150 BK
J110
150 BK
X110 A
150 BK
G101
11 20 4 5 14 15 16 18
250 BK 250 BK
L-BU L-BU
J121
OG PU PK L-GN L-BU
1 2 3 4 5
250 BK
J120
E4AD Park/ Daytime Running Lamp - Right
250 BK
X120 A
250 BK
G102
LOC
DESC

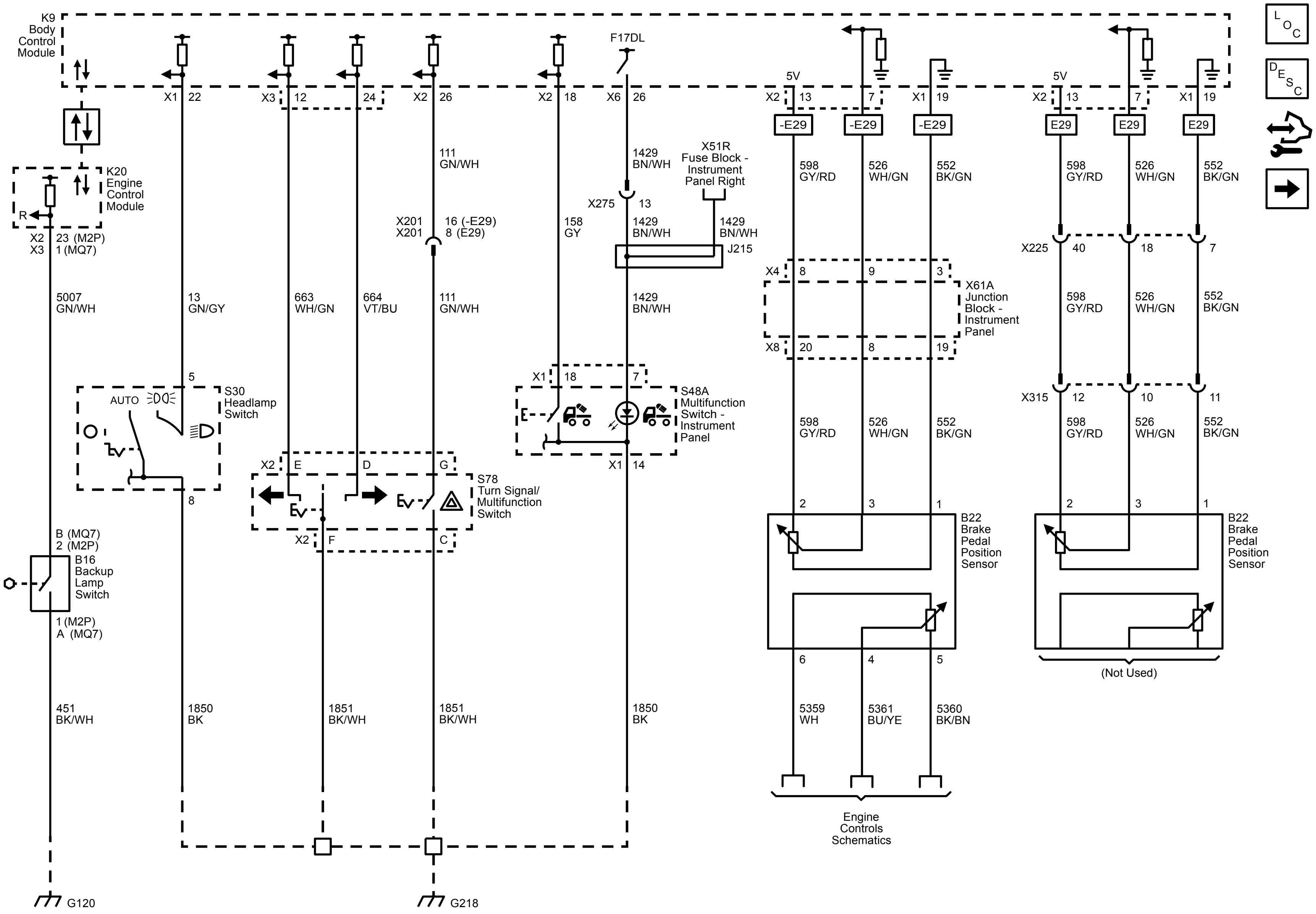
## Fog Lights Schematics

### Fog Lamps (T3U)

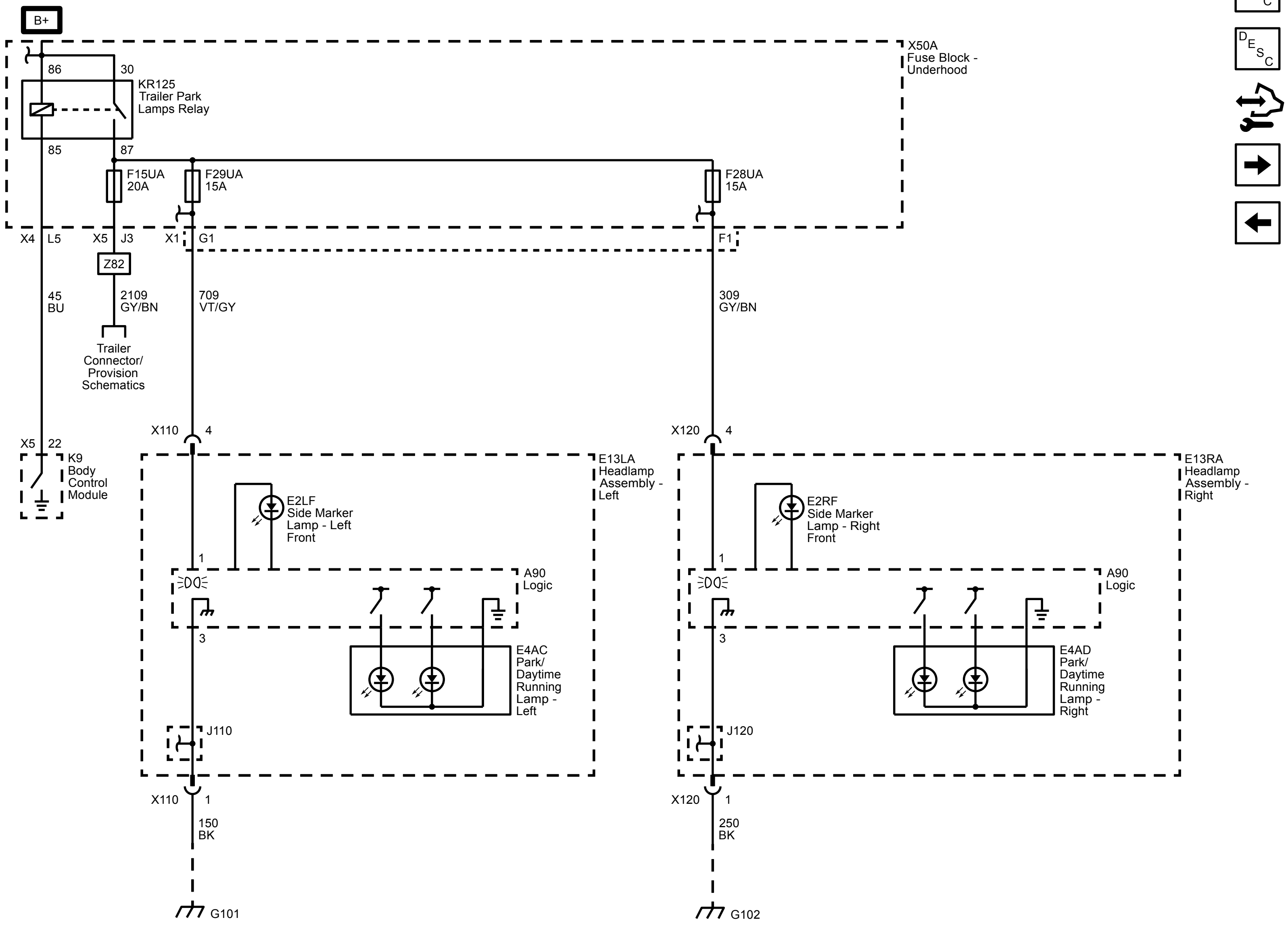

B+
X50A
Fuse Block -
Underhood
KR46
Front Fog
Lamp
Relay
F49UA
15A
X1
J3
X3
L5
2234
BN/VT
1317
BN
X100
3
2234
BN/VT
X5
10
K9
Body
Control
Module
J101
X1
15
1500
2500/3500
1500
2500/3500
2234
BN/VT
2234
BN/VT
2234
BN/VT
2234
BN/VT
192
BU/GY
1
E29LF
Fog
Lamp -
Left Front
2
A
E29LF
Fog
Lamp -
Left Front
B
1
E29RF
Fog
Lamp -
Right
Front
2
A
E29RF
Fog
Lamp -
Right
Front
B
10
S30
Headlamp
Switch
8
150
BK
150
BK
250
BK
250
BK
1850
BK
G101
G102
G218

# Exterior Lights Schematics

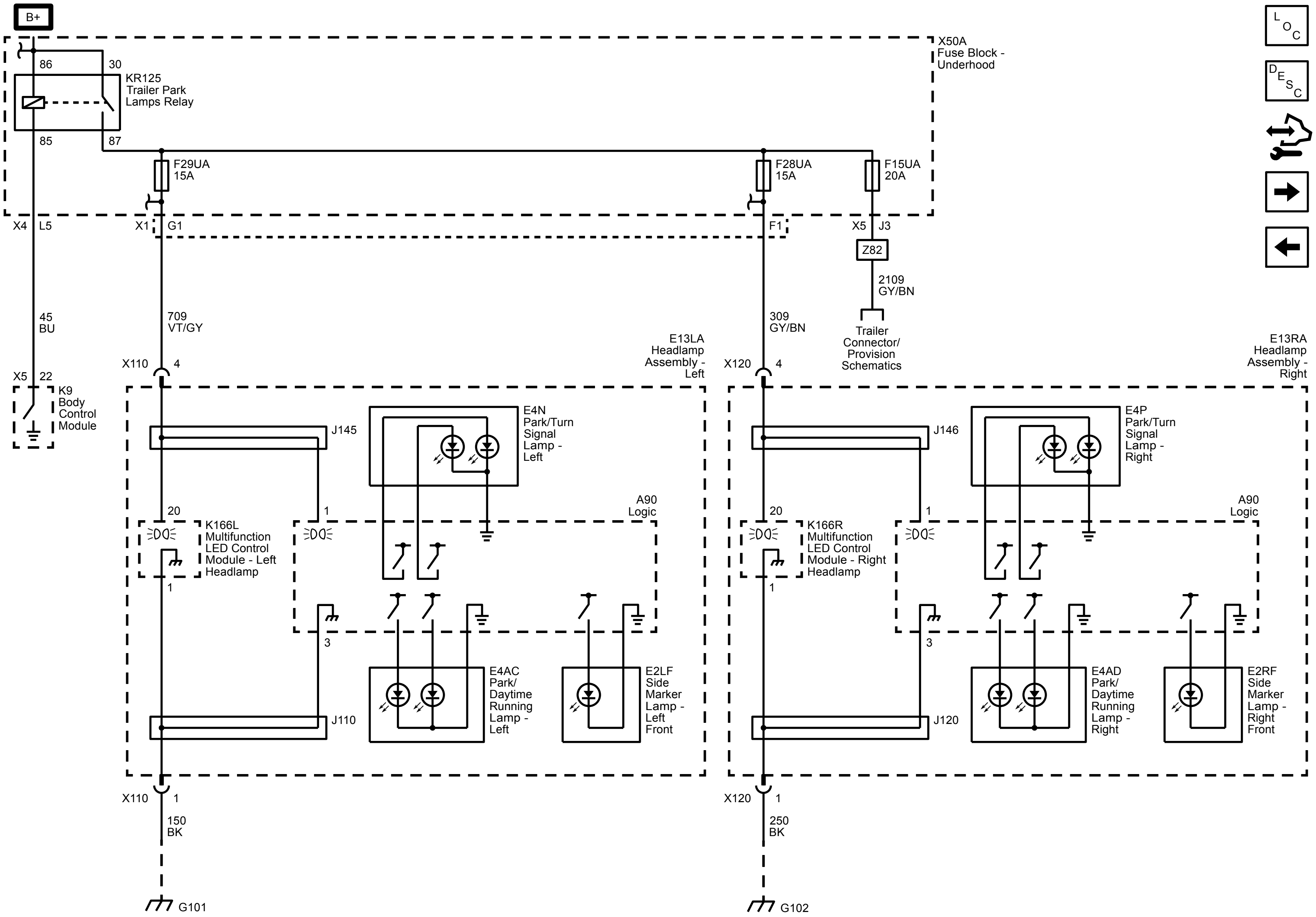
## Controls


K9 Body Control Module
X1 22
X3 12
24
X2 26
X2 18
F17DL
X6 26
5V
X2 13
7
X1 19
5V
X2 13
7
X1 19
-E29
-E29
-E29
E29
E29
E29
K20 Engine Control Module
R
X2 23 (M2P)
X3 1 (MQ7)
111 GN/WH
1429 BN/WH
X51R Fuse Block - Instrument Panel Right
X275 13
X201 16 (-E29)
X201 8 (E29)
158 GY
1429 BN/WH
1429 BN/WH
J215
598 GY/RD
526 WH/GN
552 BK/GN
598 GY/RD
526 WH/GN
552 BK/GN
X225 40
18
7
X4 8
9
3
X61A Junction Block - Instrument Panel
X8 20
8
19
5007 GN/WH
13 GN/GY
663 WH/GN
664 VT/BU
111 GN/WH
1429 BN/WH
598 GY/RD
526 WH/GN
552 BK/GN
X315 12
10
11
5
S30 Headlamp Switch
AUTO
8
X1 18
7
S48A Multifunction Switch - Instrument Panel
X1 14
X2 E
D
G
S78 Turn Signal/ Multifunction Switch
X2 F
C
598 GY/RD
526 WH/GN
552 BK/GN
598 GY/RD
526 WH/GN
552 BK/GN
2
3
1
B22 Brake Pedal Position Sensor
2
3
1
B22 Brake Pedal Position Sensor
B (MQ7)
2 (M2P)
B16 Backup Lamp Switch
1 (M2P)
A (MQ7)
6
4
5
(Not Used)
451 BK/WH
1850 BK
1851 BK/WH
1851 BK/WH
1850 BK
5359 WH
5361 BU/YE
5360 BK/BN
Engine Controls Schematics
G120
G218
L O C
D E S C

## Park Lamps (1500 with X88 with T4F)

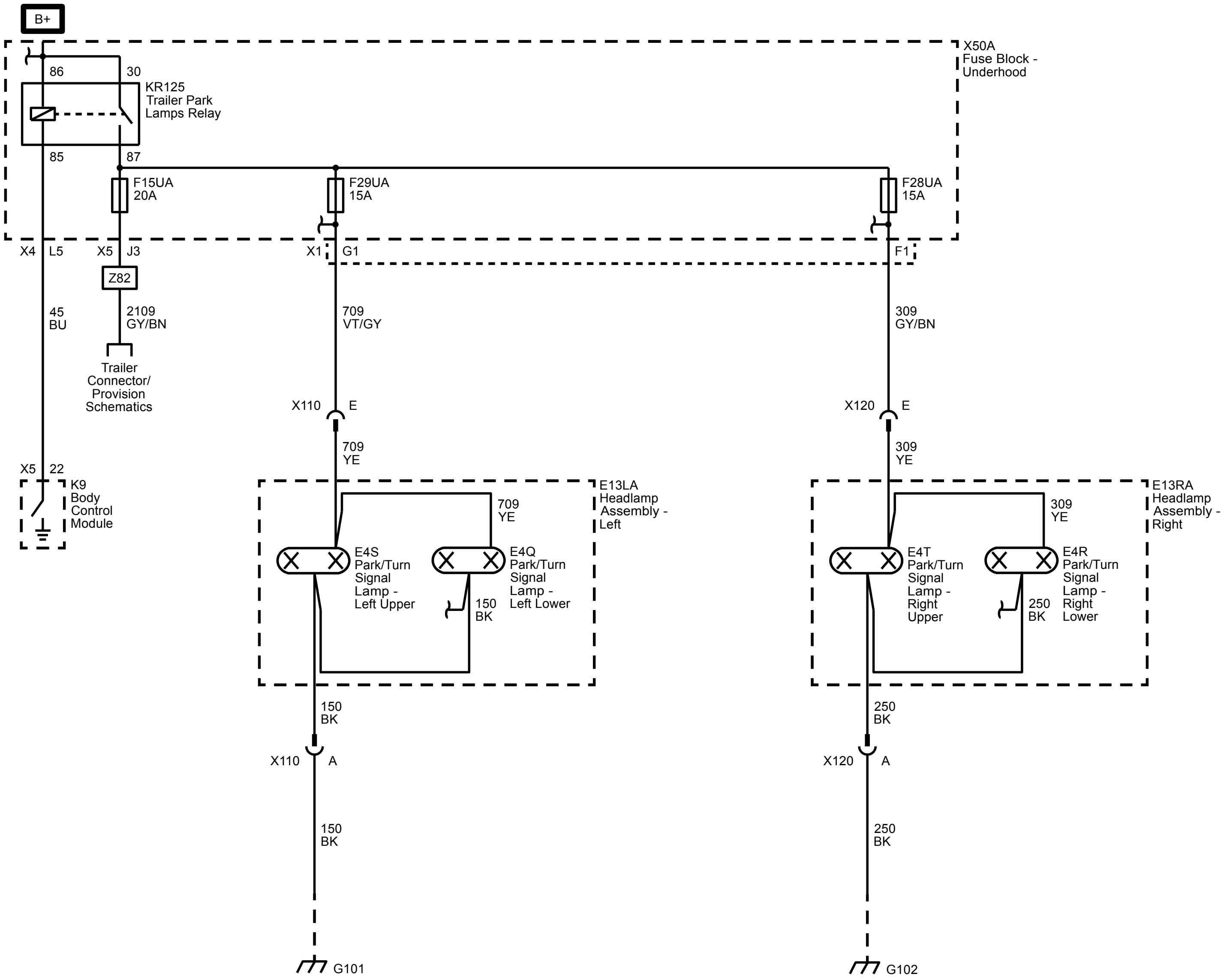

B+
86
30
KR125 Trailer Park Lamps Relay
85
87
X50A Fuse Block - Underhood
F15UA 20A
F29UA 15A
F28UA 15A
X4
L5
X5
J3
X1
G1
F1
Z82
45 BU
2109 GY/BN
709 VT/GY
309 GY/BN
Trailer Connector/ Provision Schematics
X5
22
K9 Body Control Module
X110
4
X120
4
E13LA Headlamp Assembly - Left
E13RA Headlamp Assembly - Right
E2LF Side Marker Lamp - Left Front
E2RF Side Marker Lamp - Right Front
1
1
A90 Logic
A90 Logic
3
3
E4AC Park/ Daytime Running Lamp - Left
E4AD Park/ Daytime Running Lamp - Right
J110
J120
X110
1
X120
1
150 BK
250 BK
G101
G102

## Park Lamps (1500 with X88 without T4F)

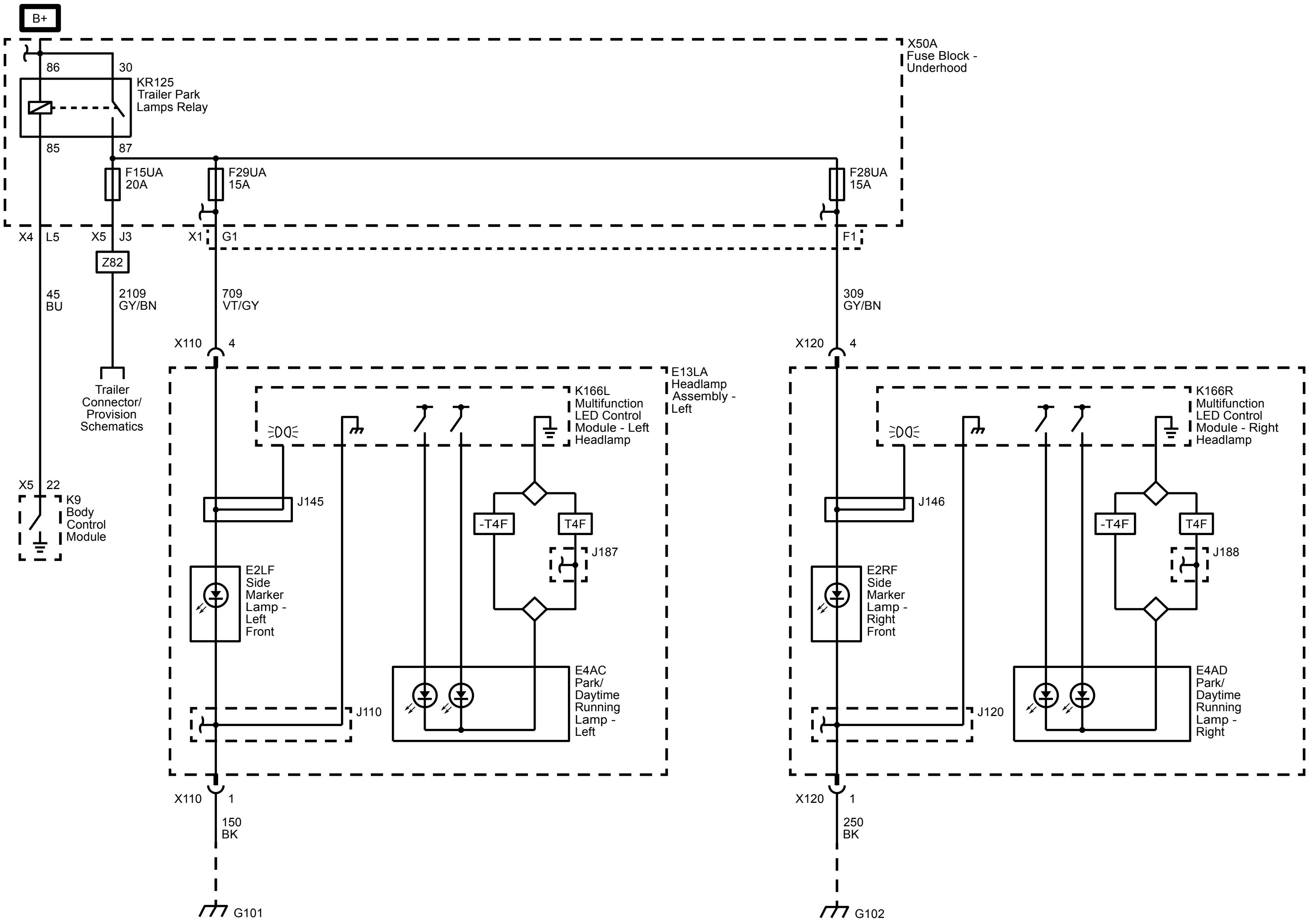


B+
X50A
Fuse Block -
Underhood
86
30
KR125
Trailer Park
Lamps Relay
85
87
F29UA
15A
F28UA
15A
F15UA
20A
X4
L5
X1
G1
F1
X5
J3
Z82
2109
GY/BN
Trailer
Connector/
Provision
Schematics
45
BU
709
VT/GY
309
GY/BN
X5
22
K9
Body
Control
Module
X110
4
X120
4
E13LA
Headlamp
Assembly -
Left
E13RA
Headlamp
Assembly -
Right
J145
J146
E4N
Park/Turn
Signal
Lamp -
Left
E4P
Park/Turn
Signal
Lamp -
Right
A90
Logic
20
1
K166L
Multifunction
LED Control
Module - Left
Headlamp
K166R
Multifunction
LED Control
Module - Right
Headlamp
3
E4AC
Park/
Daytime
Running
Lamp -
Left
E2LF
Side
Marker
Lamp -
Left
Front
E4AD
Park/
Daytime
Running
Lamp -
Right
E2RF
Side
Marker
Lamp -
Right
Front
J110
J120
X110
1
150
BK
X120
1
250
BK
G101
G102

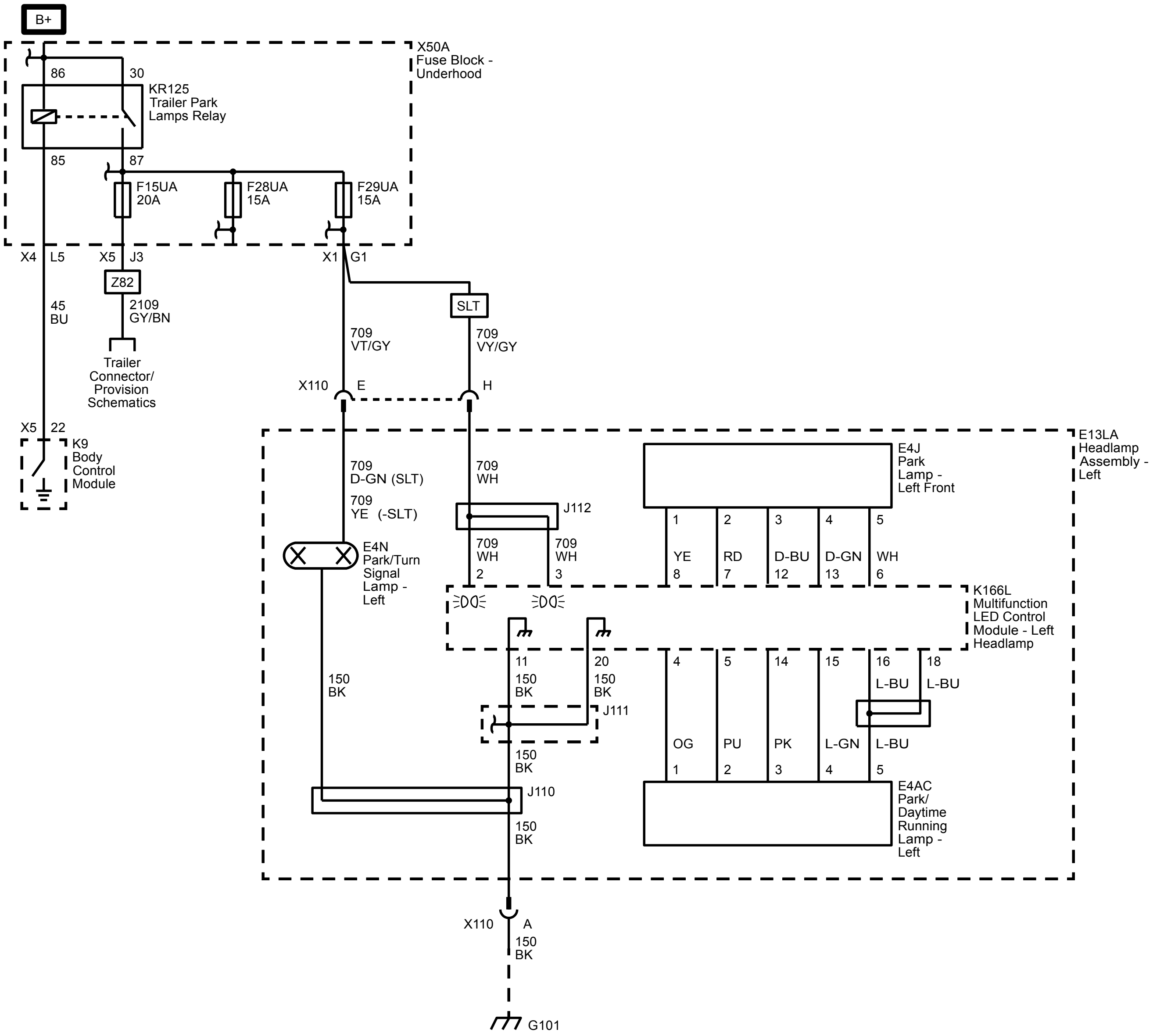
# Park Lamps (2500/3500 with Chevrolet/X88)


B+
X50A Fuse Block - Underhood
86
30
KR125 Trailer Park Lamps Relay
85
87
F15UA 20A
F29UA 15A
F28UA 15A
X4
L5
X5
J3
X1
G1
F1
Z82
45 BU
2109 GY/BN
709 VT/GY
309 GY/BN
Trailer Connector/ Provision Schematics
X110
E
X120
E
709 YE
309 YE
X5
22
K9 Body Control Module
E13LA Headlamp Assembly - Left
709 YE
E4S Park/Turn Signal Lamp - Left Upper
E4Q Park/Turn Signal Lamp - Left Lower
150 BK
E13RA Headlamp Assembly - Right
309 YE
E4T Park/Turn Signal Lamp - Right Upper
E4R Park/Turn Signal Lamp - Right Lower
250 BK
150 BK
X110
A
150 BK
250 BK
X120
A
250 BK
G101
G102

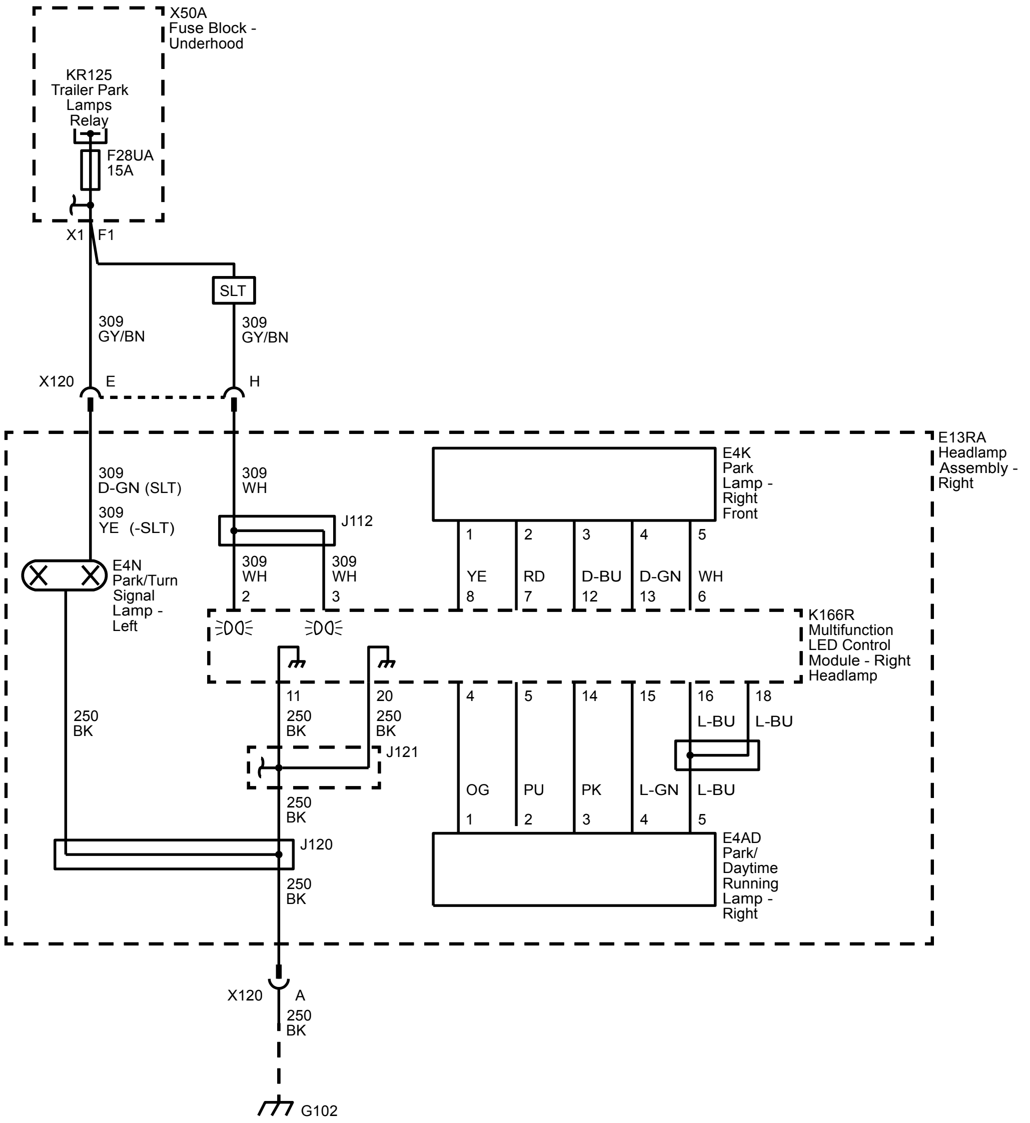
## Park Lamps (1500/Z88)


B+
X50A
Fuse Block -
Underhood
86
30
KR125
Trailer Park
Lamps Relay
85
87
F15UA
20A
F29UA
15A
F28UA
15A
X4
L5
X5
J3
X1
G1
F1
Z82
45
BU
2109
GY/BN
709
VT/GY
309
GY/BN
Trailer
Connector/
Provision
Schematics
X5
22
K9
Body
Control
Module
X110
4
X120
4
E13LA
Headlamp
Assembly -
Left
K166L
Multifunction
LED Control
Module - Left
Headlamp
J145
-T4F
T4F
J187
E2LF
Side
Marker
Lamp -
Left
Front
E4AC
Park/
Daytime
Running
Lamp -
Left
J110
X110
1
150
BK
G101
E13RA
Headlamp
Assembly -
Right
K166R
Multifunction
LED Control
Module - Right
Headlamp
J146
-T4F
T4F
J188
E2RF
Side
Marker
Lamp -
Right
Front
E4AD
Park/
Daytime
Running
Lamp -
Right
J120
X120
1
250
BK
G102

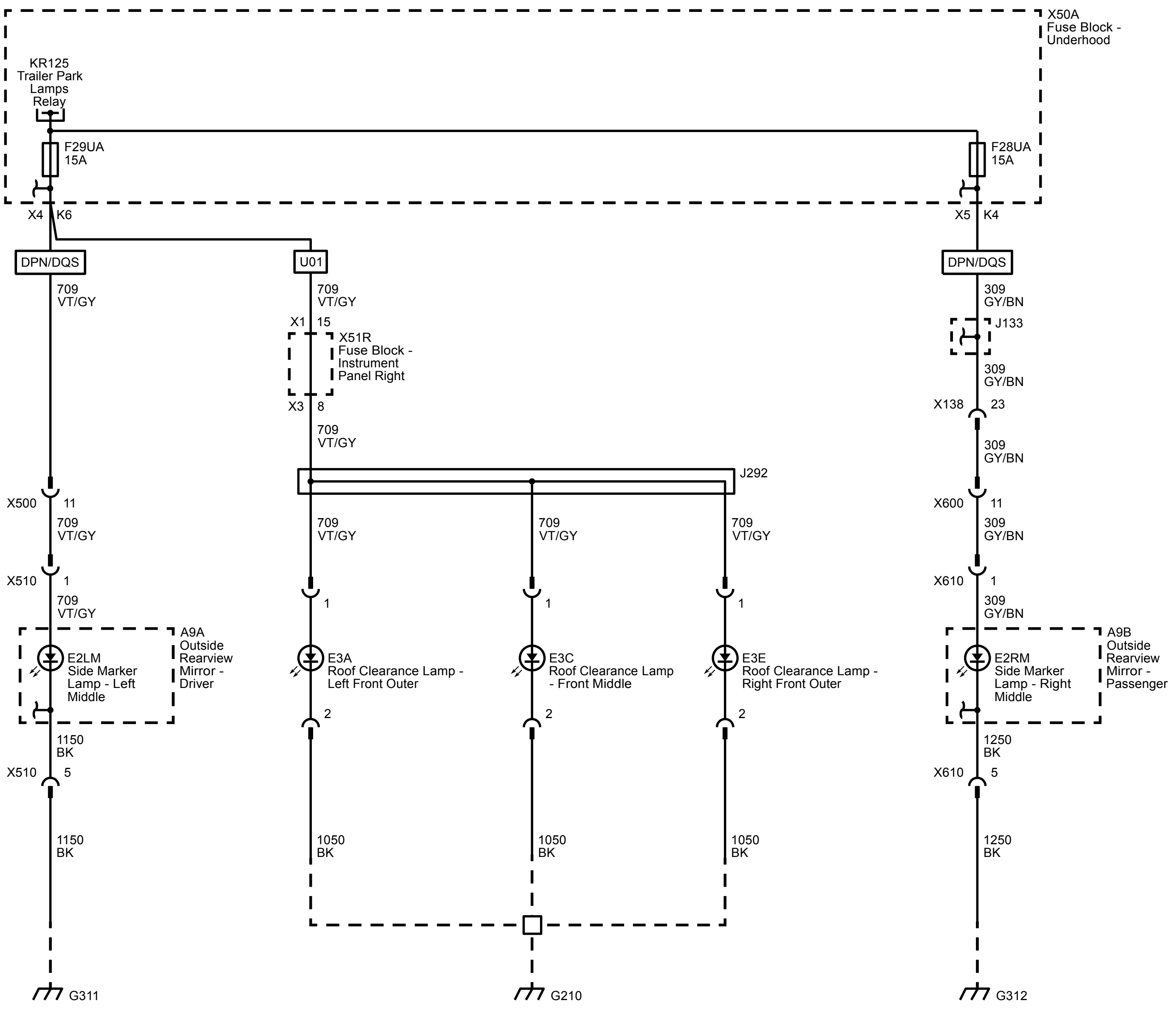
## Park Lamps - Left (2500/3500 with GMC/Z88)


B+
X50A
Fuse Block -
Underhood
86
30
KR125
Trailer Park
Lamps Relay
85
87
F15UA
20A
F28UA
15A
F29UA
15A
X4
L5
X5
J3
X1
G1
Z82
45
BU
2109
GY/BN
Trailer
Connector/
Provision
Schematics
SLT
709
VT/GY
709
VY/GY
X110
E
H
X5
22
K9
Body
Control
Module
E13LA
Headlamp
Assembly -
Left
E4J
Park
Lamp -
Left Front
709
D-GN (SLT)
709
YE (-SLT)
709
WH
J112
E4N
Park/Turn
Signal
Lamp -
Left
709
WH
2
709
WH
3
1
2
3
4
5
YE
8
RD
7
D-BU
12
D-GN
13
WH
6
K166L
Multifunction
LED Control
Module - Left
Headlamp
11
150
BK
20
150
BK
4
5
14
15
16
18
L-BU
L-BU
150
BK
J111
150
BK
OG
1
PU
2
PK
3
L-GN
4
L-BU
5
J110
150
BK
E4AC
Park/
Daytime
Running
Lamp -
Left
X110
A
150
BK
G101

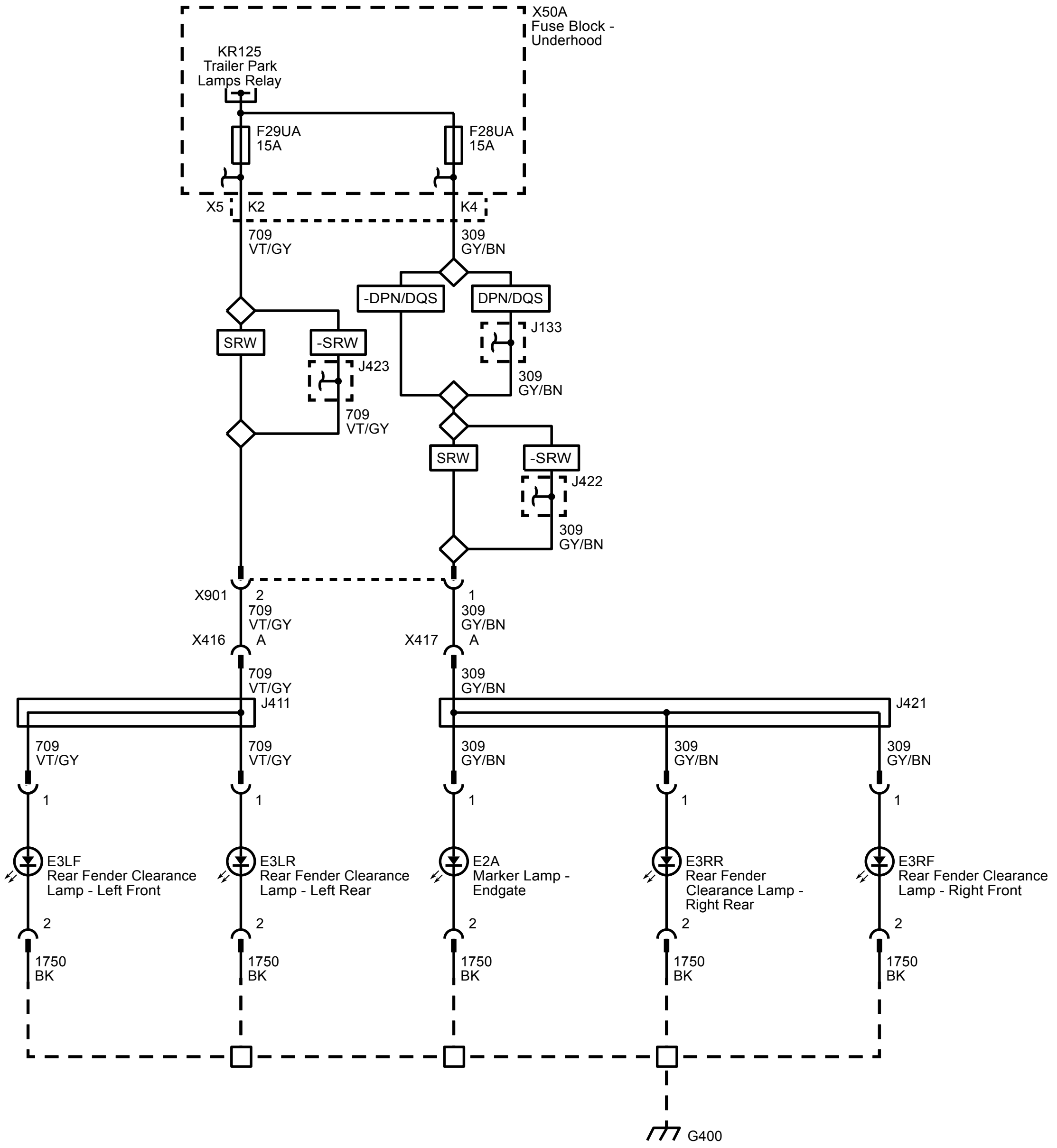
## Park Lamps - Right (2500/3500 with GMC/Z88)


X50A Fuse Block - Underhood
KR125 Trailer Park Lamps Relay
F28UA 15A
X1
F1
SLT
309 GY/BN
309 GY/BN
X120
E
H
E13RA Headlamp Assembly - Right
309 D-GN (SLT)
309 YE (-SLT)
309 WH
J112
309 WH 2
309 WH 3
E4N Park/Turn Signal Lamp - Left
E4K Park Lamp - Right Front
1 2 3 4 5
YE 8
RD 7
D-BU 12
D-GN 13
WH 6
K166R Multifunction LED Control Module - Right Headlamp
250 BK
11 250 BK
20 250 BK
J121
250 BK
J120
250 BK
4 5 14 15 16 18
L-BU
L-BU
OG 1
PU 2
PK 3
L-GN 4
L-BU 5
E4AD Park/ Daytime Running Lamp - Right
X120
A
250 BK
G102

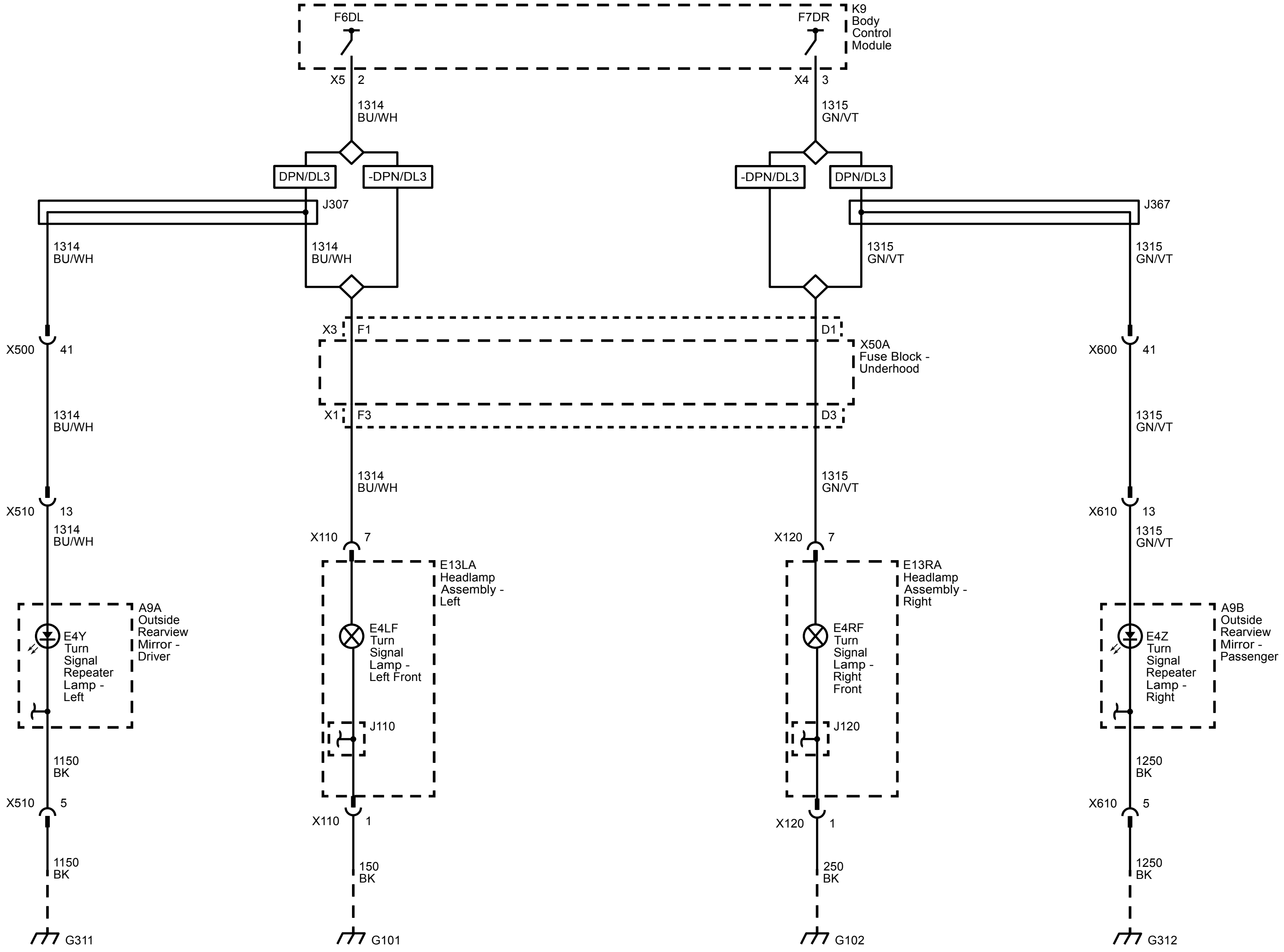
## Park Lamps - Mirror (DPN or DQS) and Roof (U01)


X50A
Fuse Block - Underhood
KR125
Trailer Park Lamps Relay
F29UA
15A
F28UA
15A
X4
K6
X5
K4
DPN/DQS
U01
DPN/DQS
709
VT/GY
709
VT/GY
309
GY/BN
X1
15
X51R
Fuse Block - Instrument Panel Right
J133
X3
8
309
GY/BN
X138
23
709
VT/GY
309
GY/BN
J292
X500
11
X600
11
709
VT/GY
709
VT/GY
709
VT/GY
709
VT/GY
309
GY/BN
X510
1
1
1
1
X610
1
709
VT/GY
309
GY/BN
A9A
Outside Rearview Mirror - Driver
E2LM
Side Marker Lamp - Left Middle
E3A
Roof Clearance Lamp - Left Front Outer
E3C
Roof Clearance Lamp - Front Middle
E3E
Roof Clearance Lamp - Right Front Outer
E2RM
Side Marker Lamp - Right Middle
A9B
Outside Rearview Mirror - Passenger
2
2
2
1150
BK
1250
BK
X510
5
X610
5
1150
BK
1050
BK
1050
BK
1050
BK
1250
BK
G311
G210
G312

# Park Lamps - Rear Clearance (DRW)

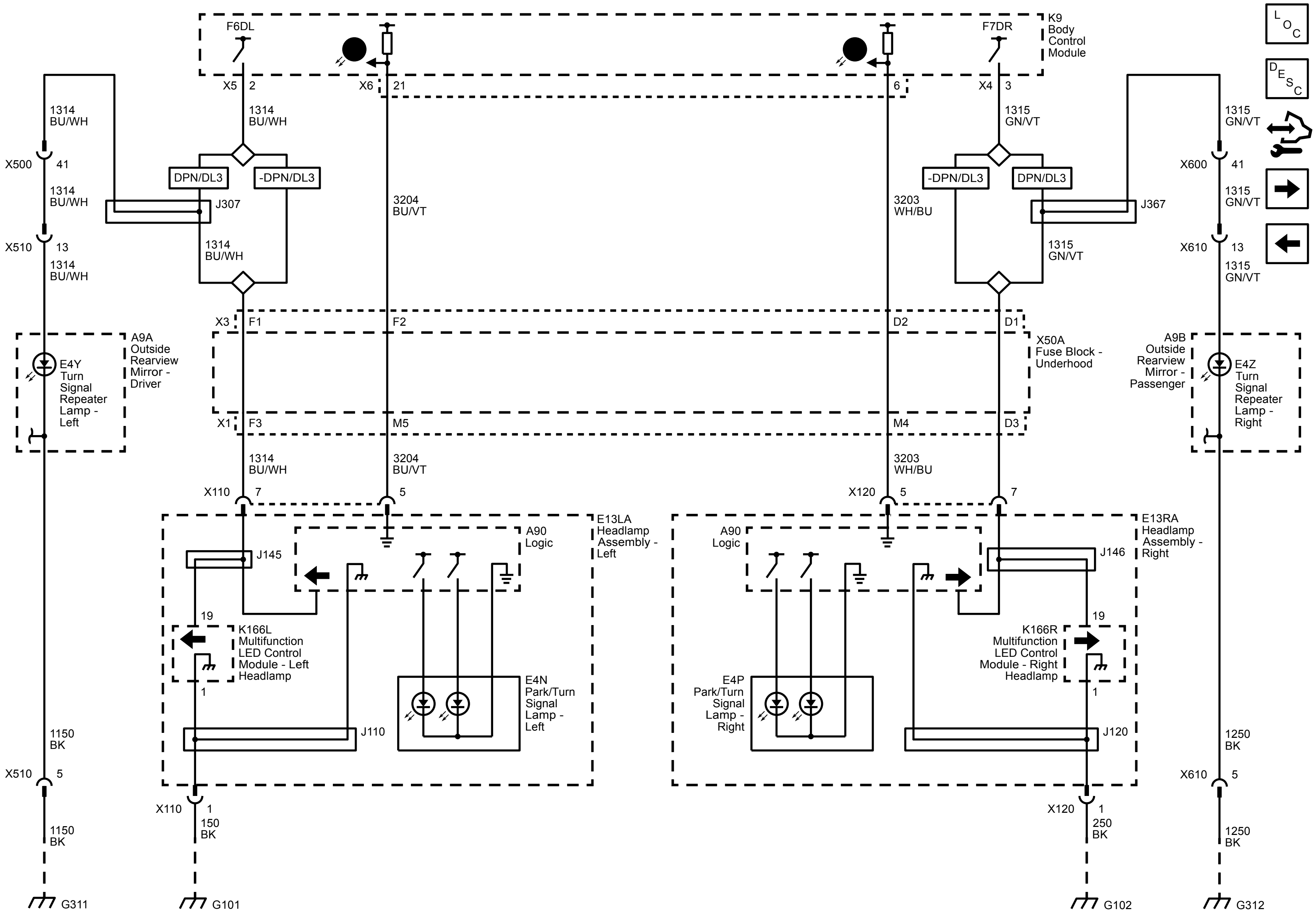

X50A
Fuse Block -
Underhood
KR125
Trailer Park
Lamps Relay
F29UA
15A
F28UA
15A
X5
K2
K4
709
VT/GY
309
GY/BN
-DPN/DQS
DPN/DQS
J133
SRW
-SRW
J423
309
GY/BN
709
VT/GY
SRW
-SRW
J422
309
GY/BN
X901
2
709
VT/GY
X416
A
1
309
GY/BN
X417
A
709
VT/GY
J411
309
GY/BN
J421
709
VT/GY
709
VT/GY
309
GY/BN
309
GY/BN
309
GY/BN
1
1
1
1
1
E3LF
Rear Fender Clearance
Lamp - Left Front
E3LR
Rear Fender Clearance
Lamp - Left Rear
E2A
Marker Lamp -
Endgate
E3RR
Rear Fender
Clearance Lamp -
Right Rear
E3RF
Rear Fender Clearance
Lamp - Right Front
2
2
2
2
2
1750
BK
1750
BK
1750
BK
1750
BK
1750
BK
G400

## Turn Signal Lamps - Front (1500 with X88 or Z88 with T4F)

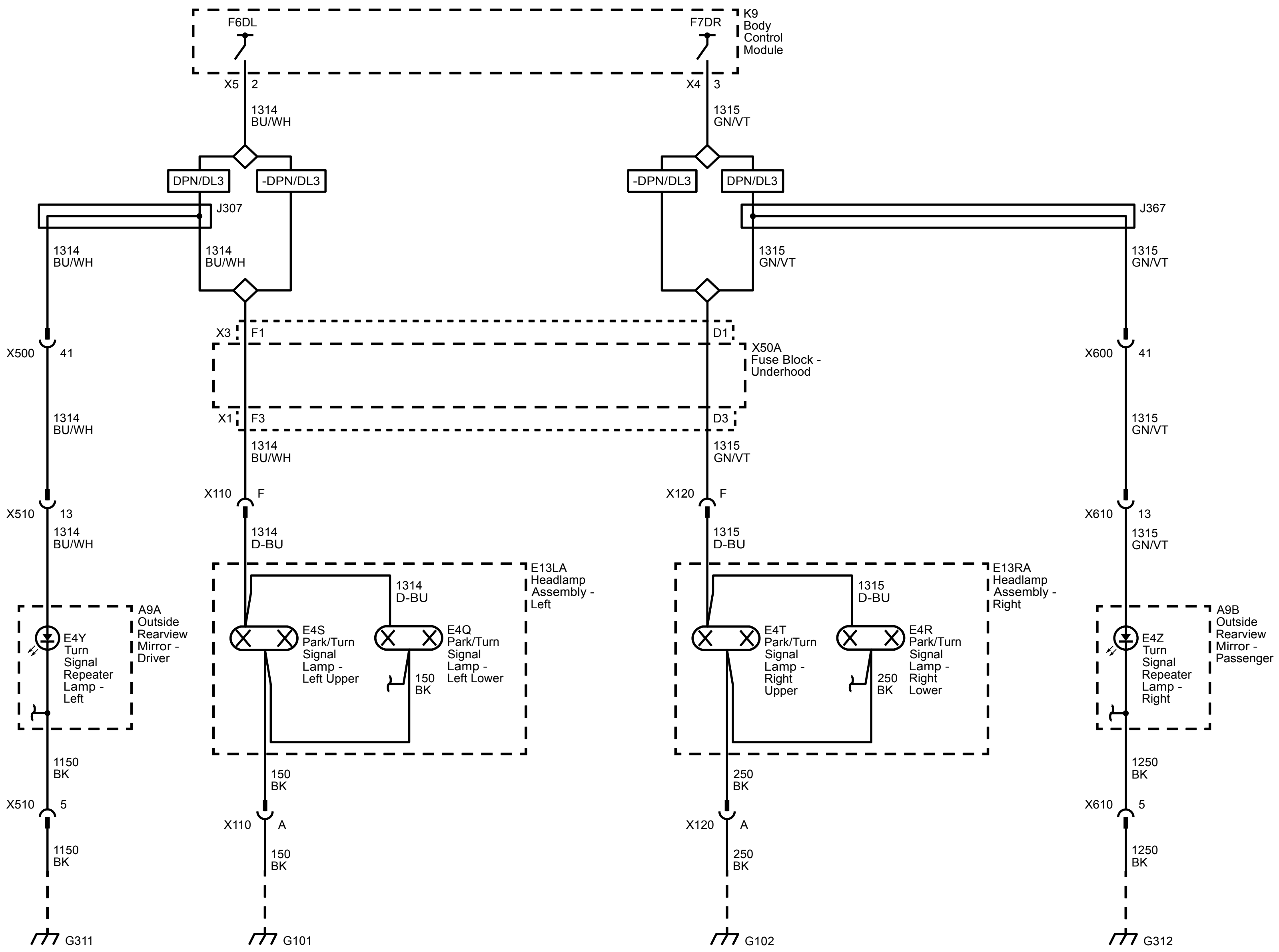


F6DL
F7DR
K9 Body Control Module
X5 2
X4 3
1314 BU/WH
1315 GN/VT
DPN/DL3
-DPN/DL3
-DPN/DL3
DPN/DL3
J307
J367
1314 BU/WH
1314 BU/WH
1315 GN/VT
1315 GN/VT
X3 F1
D1
X50A Fuse Block - Underhood
X1 F3
D3
X500 41
X600 41
1314 BU/WH
1315 GN/VT
1314 BU/WH
1315 GN/VT
X510 13
X610 13
1314 BU/WH
1315 GN/VT
X110 7
X120 7
E13LA Headlamp Assembly - Left
E13RA Headlamp Assembly - Right
A9A Outside Rearview Mirror - Driver
E4Y Turn Signal Repeater Lamp - Left
E4LF Turn Signal Lamp - Left Front
E4RF Turn Signal Lamp - Right Front
E4Z Turn Signal Repeater Lamp - Right
A9B Outside Rearview Mirror - Passenger
J110
J120
1150 BK
1250 BK
X510 5
X110 1
X120 1
X610 5
1150 BK
150 BK
250 BK
1250 BK
G311
G101
G102
G312

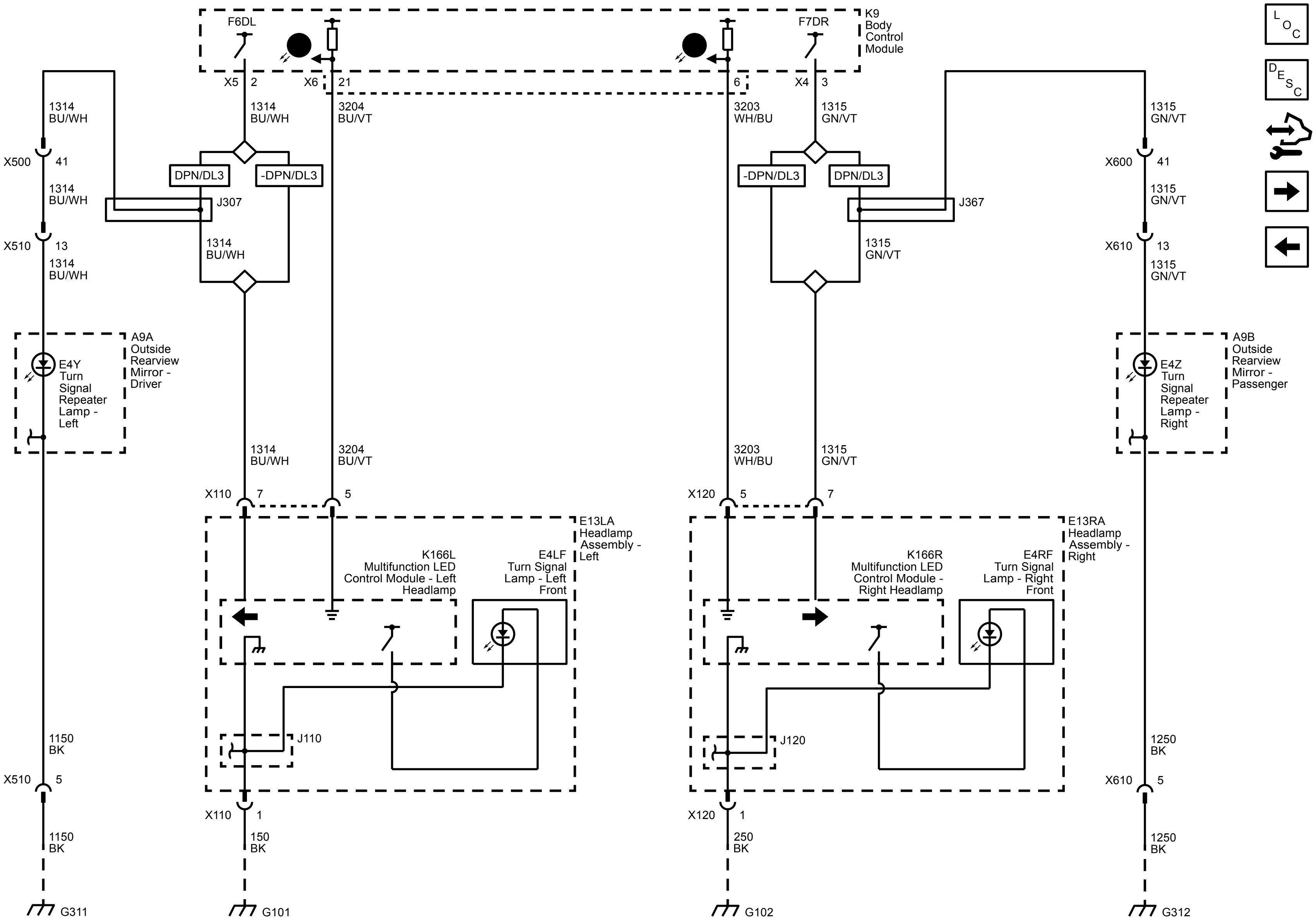
## Turn Signal Lamps - Front (1500 with X88 without T4F)


F6DL
K9
Body
Control
Module
F7DR
X5 2
X6 21
6
X4 3
1314
BU/WH
1314
BU/WH
1315
GN/VT
1315
GN/VT
X500 41
DPN/DL3
-DPN/DL3
-DPN/DL3
DPN/DL3
X600 41
1314
BU/WH
J307
3204
BU/VT
3203
WH/BU
J367
1315
GN/VT
X510 13
1314
BU/WH
1315
GN/VT
X610 13
1314
BU/WH
1315
GN/VT
X3 F1
F2
D2
D1
X50A
Fuse Block -
Underhood
A9A
Outside
Rearview
Mirror -
Driver
E4Y
Turn
Signal
Repeater
Lamp -
Left
A9B
Outside
Rearview
Mirror -
Passenger
E4Z
Turn
Signal
Repeater
Lamp -
Right
X1 F3
M5
M4
D3
1314
BU/WH
3204
BU/VT
3203
WH/BU
X110 7
5
X120 5
7
E13LA
Headlamp
Assembly -
Left
A90
Logic
A90
Logic
E13RA
Headlamp
Assembly -
Right
J145
J146
19
19
K166L
Multifunction
LED Control
Module - Left
Headlamp
K166R
Multifunction
LED Control
Module - Right
Headlamp
1
1
E4N
Park/Turn
Signal
Lamp -
Left
E4P
Park/Turn
Signal
Lamp -
Right
1150
BK
J110
J120
1250
BK
X510 5
X610 5
X110 1
150
BK
X120 1
250
BK
1150
BK
1250
BK
G311
G101
G102
G312
L O C
D E S C

## Turn Signal Lamps - Front (2500/3500 with Chevrolet/X88)

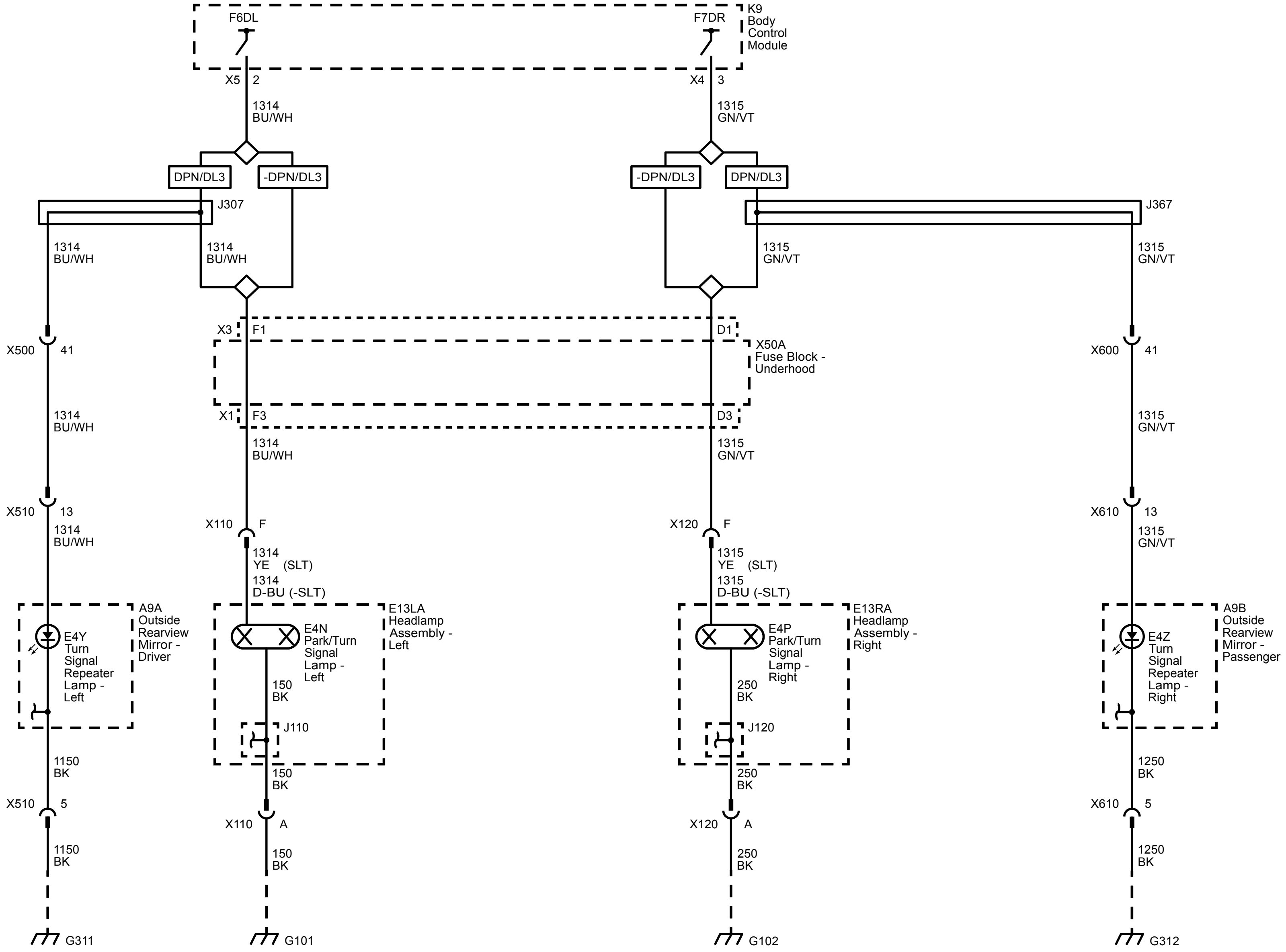

F6DL
F7DR
K9
Body
Control
Module
X5 2
X4 3
1314
BU/WH
1315
GN/VT
DPN/DL3
-DPN/DL3
-DPN/DL3
DPN/DL3
J307
J367
1314
BU/WH
1314
BU/WH
1315
GN/VT
1315
GN/VT
X3 F1
D1
X50A
Fuse Block -
Underhood
X1 F3
D3
X500 41
X600 41
1314
BU/WH
1314
BU/WH
1315
GN/VT
1315
GN/VT
X110 F
X120 F
X510 13
X610 13
1314
BU/WH
1314
D-BU
1315
D-BU
1315
GN/VT
E13LA
Headlamp
Assembly -
Left
E13RA
Headlamp
Assembly -
Right
1314
D-BU
1315
D-BU
A9A
Outside
Rearview
Mirror -
Driver
A9B
Outside
Rearview
Mirror -
Passenger
E4Y
Turn
Signal
Repeater
Lamp -
Left
E4S
Park/Turn
Signal
Lamp -
Left Upper
E4Q
Park/Turn
Signal
Lamp -
Left Lower
150
BK
E4T
Park/Turn
Signal
Lamp -
Right
Upper
E4R
Park/Turn
Signal
Lamp -
Right
Lower
250
BK
E4Z
Turn
Signal
Repeater
Lamp -
Right
1150
BK
150
BK
250
BK
1250
BK
X510 5
X110 A
X120 A
X610 5
1150
BK
150
BK
250
BK
1250
BK
G311
G101
G102
G312

# Turn Signal Lamps - Front (1500 with Z88 without T4F)

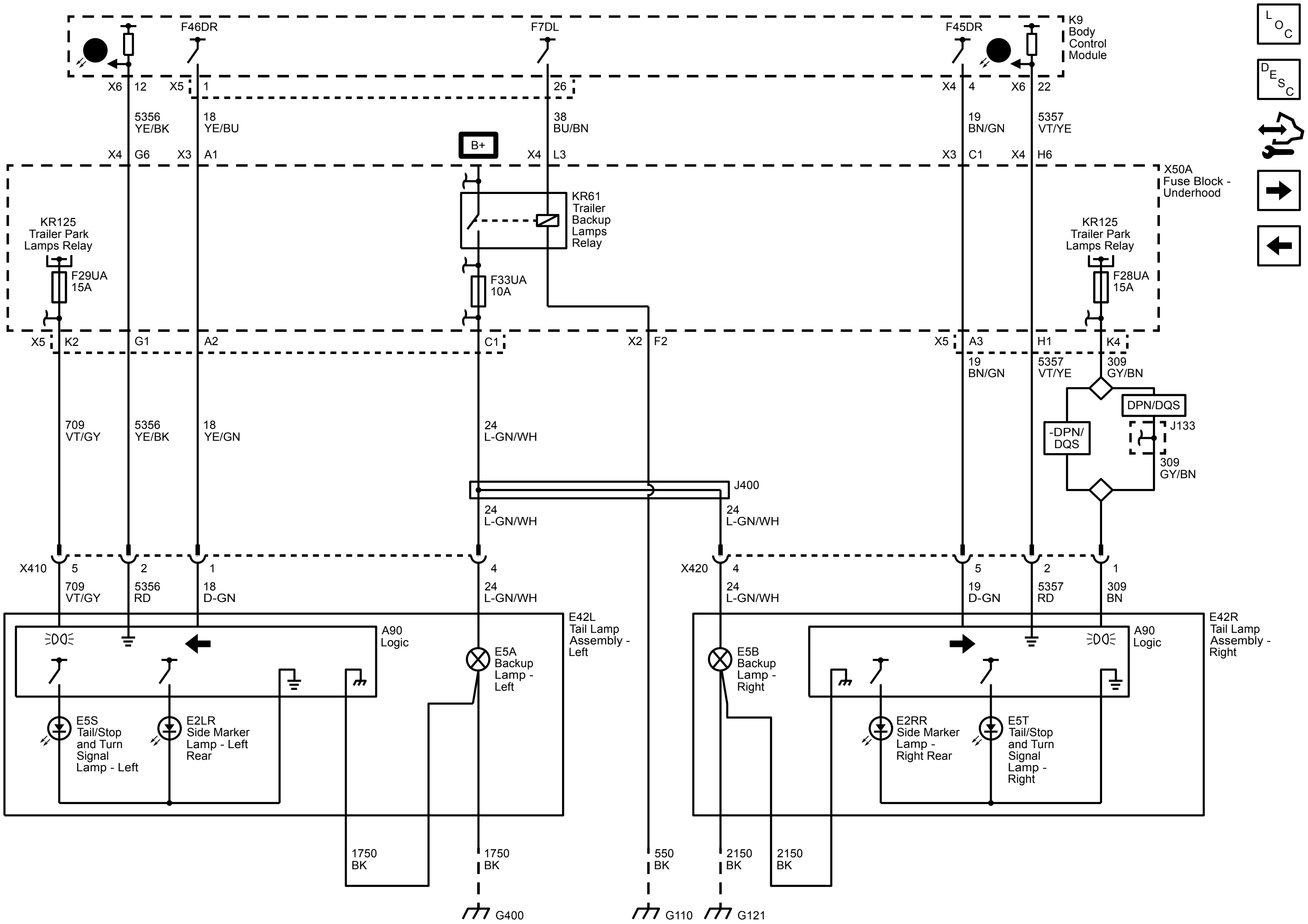


K9 Body Control Module
F6DL
F7DR
X5 2
X6 21
6
X4 3
1314 BU/WH
3204 BU/VT
3203 WH/BU
1315 GN/VT
DPN/DL3
-DPN/DL3
J307
J367
X500 41
X510 13
X600 41
X610 13
A9A Outside Rearview Mirror - Driver
E4Y Turn Signal Repeater Lamp - Left
A9B Outside Rearview Mirror - Passenger
E4Z Turn Signal Repeater Lamp - Right
X110 7
5
X120 5
7
E13LA Headlamp Assembly - Left
K166L Multifunction LED Control Module - Left Headlamp
E4LF Turn Signal Lamp - Left Front
E13RA Headlamp Assembly - Right
K166R Multifunction LED Control Module - Right Headlamp
E4RF Turn Signal Lamp - Right Front
J110
J120
1150 BK
X510 5
X110 1
150 BK
X120 1
250 BK
1250 BK
X610 5
G311
G101
G102
G312
LOC
DESC

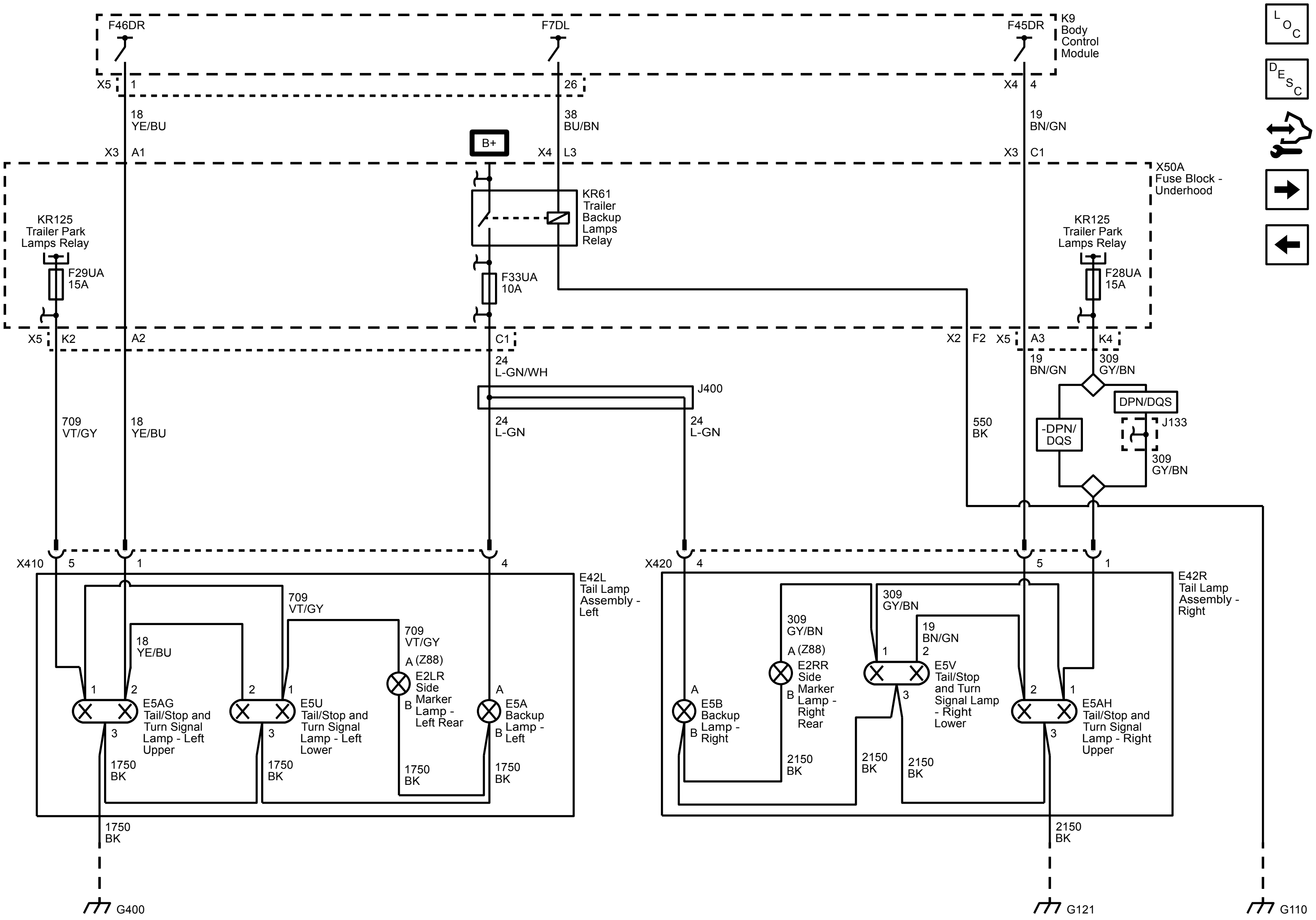
## Turn Signal Lamps - Front (2500/3500 with GMC/Z88)


F6DL
F7DR
K9
Body
Control
Module
X5 2
X4 3
1314
BU/WH
1315
GN/VT
DPN/DL3
-DPN/DL3
-DPN/DL3
DPN/DL3
J307
J367
1314
BU/WH
1314
BU/WH
1315
GN/VT
1315
GN/VT
X3 F1
D1
X50A
Fuse Block -
Underhood
X1 F3
D3
X500 41
X600 41
1314
BU/WH
1314
BU/WH
1315
GN/VT
1315
GN/VT
X510 13
X610 13
1314
BU/WH
1315
GN/VT
X110 F
X120 F
1314
YE (SLT)
1314
D-BU (-SLT)
1315
YE (SLT)
1315
D-BU (-SLT)
A9A
Outside
Rearview
Mirror -
Driver
E4Y
Turn
Signal
Repeater
Lamp -
Left
E13LA
Headlamp
Assembly -
Left
E4N
Park/Turn
Signal
Lamp -
Left
E13RA
Headlamp
Assembly -
Right
E4P
Park/Turn
Signal
Lamp -
Right
A9B
Outside
Rearview
Mirror -
Passenger
E4Z
Turn
Signal
Repeater
Lamp -
Right
150
BK
J110
250
BK
J120
1150
BK
150
BK
250
BK
1250
BK
X510 5
X110 A
X120 A
X610 5
1150
BK
150
BK
250
BK
1250
BK
G311
G101
G102
G312

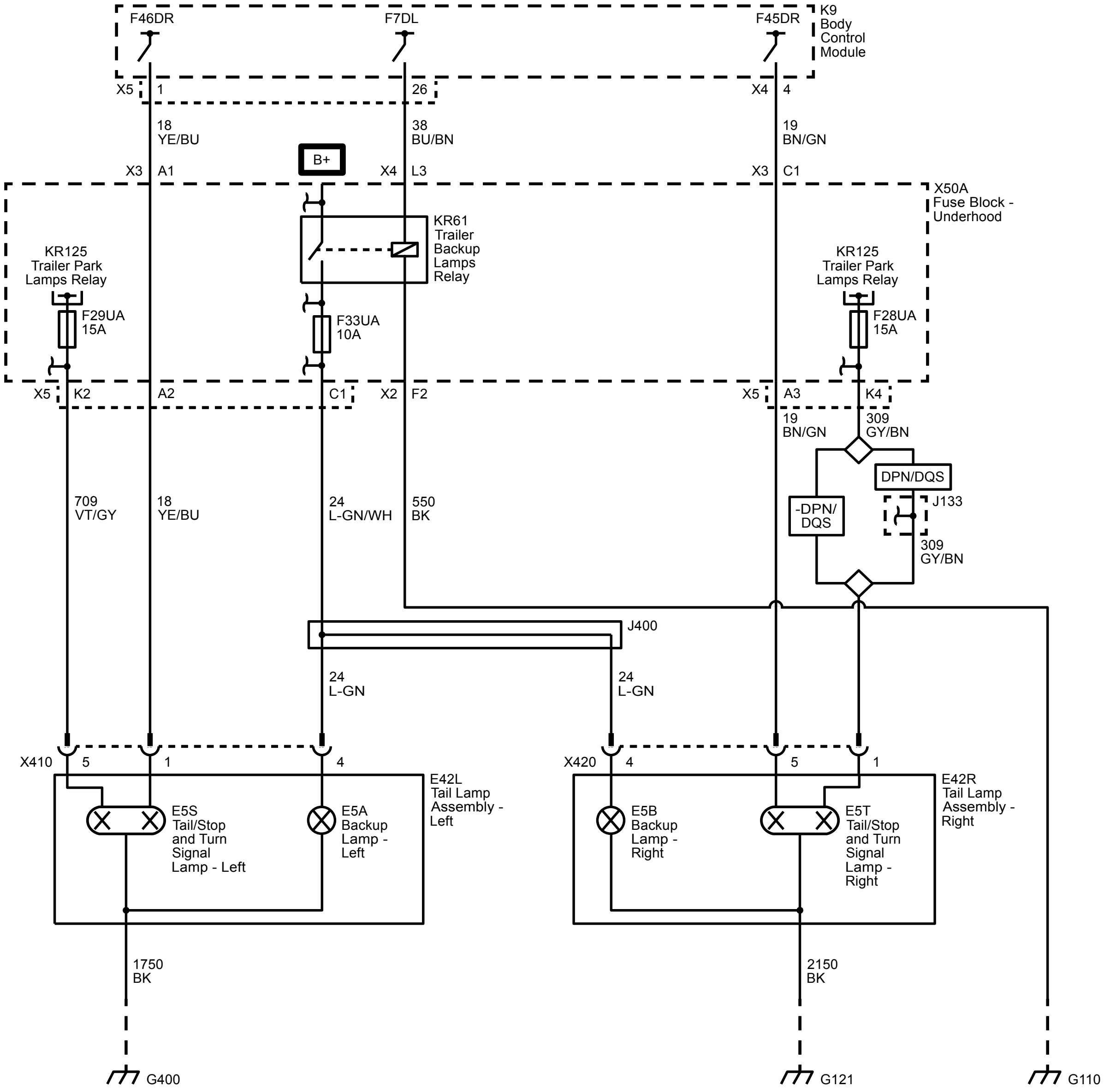
# Tail Lamps (LED)


F46DR
F7DL
F45DR
K9
Body
Control
Module
X6 12
X5 1
26
X4 4
X6 22
5356
YE/BK
18
YE/BU
38
BU/BN
19
BN/GN
5357
VT/YE
X4 G6
X3 A1
B+
X4 L3
X3 C1
X4 H6
X50A
Fuse Block -
Underhood
KR61
Trailer
Backup
Lamps
Relay
KR125
Trailer Park
Lamps Relay
F29UA
15A
F33UA
10A
KR125
Trailer Park
Lamps Relay
F28UA
15A
X5 K2
G1
A2
C1
X2 F2
X5 A3
H1
K4
19
BN/GN
5357
VT/YE
309
GY/BN
DPN/DQS
-DPN/
DQS
J133
309
GY/BN
709
VT/GY
5356
YE/BK
18
YE/GN
24
L-GN/WH
J400
24
L-GN/WH
24
L-GN/WH
X410 5
2
1
4
X420 4
5
2
1
709
VT/GY
5356
RD
18
D-GN
24
L-GN/WH
24
L-GN/WH
19
D-GN
5357
RD
309
BN
A90
Logic
E42L
Tail Lamp
Assembly -
Left
E5A
Backup
Lamp -
Left
E5B
Backup
Lamp -
Right
A90
Logic
E42R
Tail Lamp
Assembly -
Right
E5S
Tail/Stop
and Turn
Signal
Lamp - Left
E2LR
Side Marker
Lamp - Left
Rear
E2RR
Side Marker
Lamp -
Right Rear
E5T
Tail/Stop
and Turn
Signal
Lamp -
Right
1750
BK
1750
BK
550
BK
2150
BK
2150
BK
G400
G110
G121

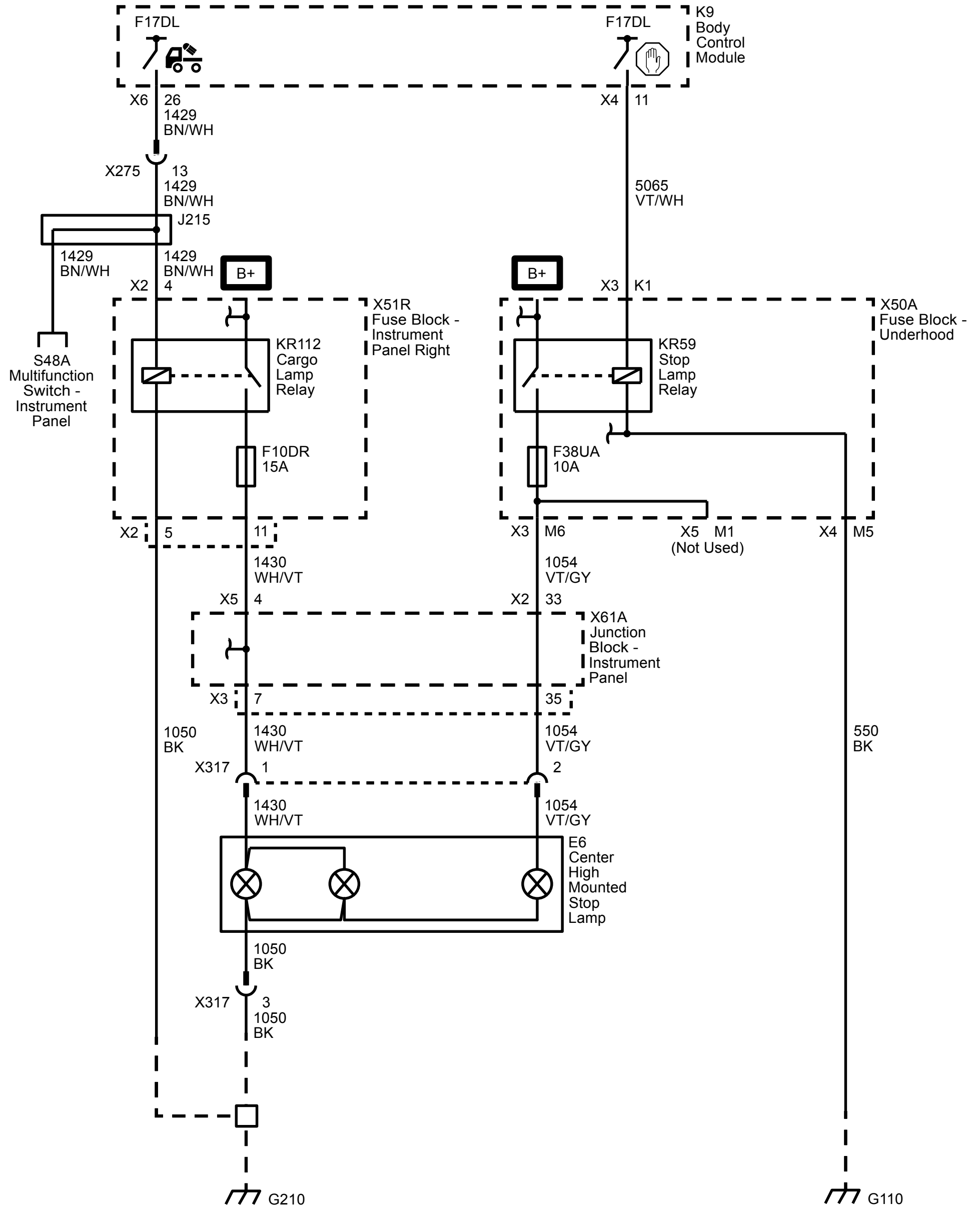
## Tail Lamps (without ZW9 or LED)


F46DR
F7DL
F45DR
K9 Body Control Module
X5 1
26
X4 4
18 YE/BU
38 BU/BN
19 BN/GN
X3 A1
B+
X4 L3
X3 C1
X50A Fuse Block - Underhood
KR61 Trailer Backup Lamps Relay
KR125 Trailer Park Lamps Relay
F29UA 15A
F33UA 10A
F28UA 15A
X5 K2
A2
C1
X2 F2
X5 A3
K4
24 L-GN/WH
J400
19 BN/GN
309 GY/BN
DPN/DQS
-DPN/ DQS
J133
709 VT/GY
18 YE/BU
24 L-GN
24 L-GN
550 BK
309 GY/BN
X410 5 1 4
X420 4 5 1
E42L Tail Lamp Assembly - Left
E42R Tail Lamp Assembly - Right
709 VT/GY
18 YE/BU
709 VT/GY
A (Z88)
E2LR Side Marker Lamp - Left Rear
E5AG Tail/Stop and Turn Signal Lamp - Left Upper
E5U Tail/Stop and Turn Signal Lamp - Left Lower
E5A Backup Lamp - Left
1750 BK
G400
309 GY/BN
309 GY/BN
A (Z88)
19 BN/GN
E2RR Side Marker Lamp - Right Rear
E5V Tail/Stop and Turn Signal Lamp - Right Lower
E5B Backup Lamp - Right
E5AH Tail/Stop and Turn Signal Lamp - Right Upper
2150 BK
G121
G110

# Tail Lamps (ZW9)

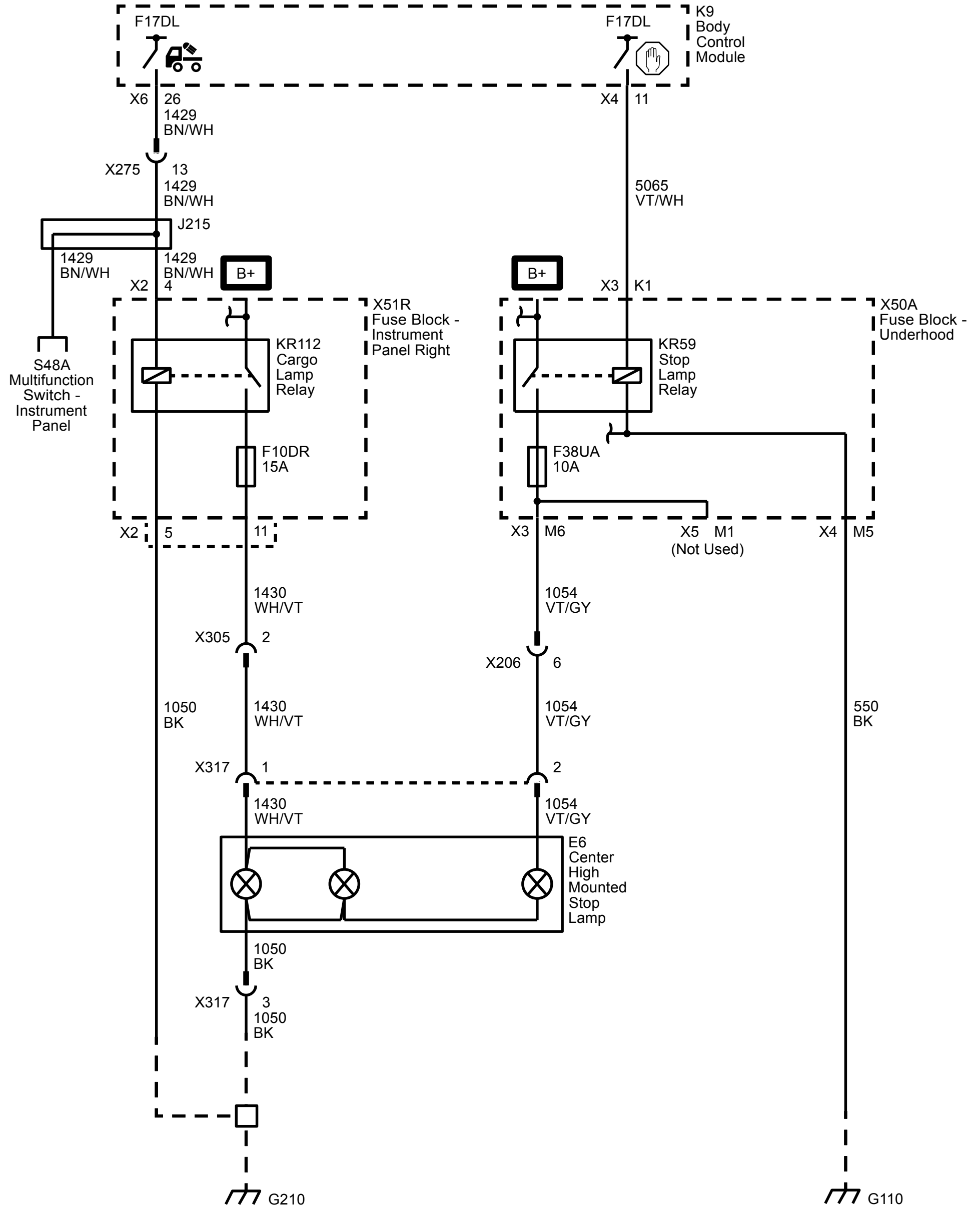

F46DR
F7DL
F45DR
K9
Body
Control
Module
X5
1
26
X4
4
18
YE/BU
38
BU/BN
19
BN/GN
B+
X3
A1
X4
L3
X3
C1
X50A
Fuse Block -
Underhood
KR61
Trailer
Backup
Lamps
Relay
KR125
Trailer Park
Lamps Relay
F29UA
15A
F33UA
10A
KR125
Trailer Park
Lamps Relay
F28UA
15A
X5
K2
A2
C1
X2
F2
X5
A3
K4
19
BN/GN
309
GY/BN
DPN/DQS
-DPN/
DQS
J133
309
GY/BN
709
VT/GY
18
YE/BU
24
L-GN/WH
550
BK
J400
24
L-GN
24
L-GN
X410
5
1
4
E42L
Tail Lamp
Assembly -
Left
E5S
Tail/Stop
and Turn
Signal
Lamp - Left
E5A
Backup
Lamp -
Left
X420
4
5
1
E42R
Tail Lamp
Assembly -
Right
E5B
Backup
Lamp -
Right
E5T
Tail/Stop
and Turn
Signal
Lamp -
Right
1750
BK
2150
BK
G400
G121
G110

# Roof Cargo and Center High Mounted Stop Lamps (except E29)

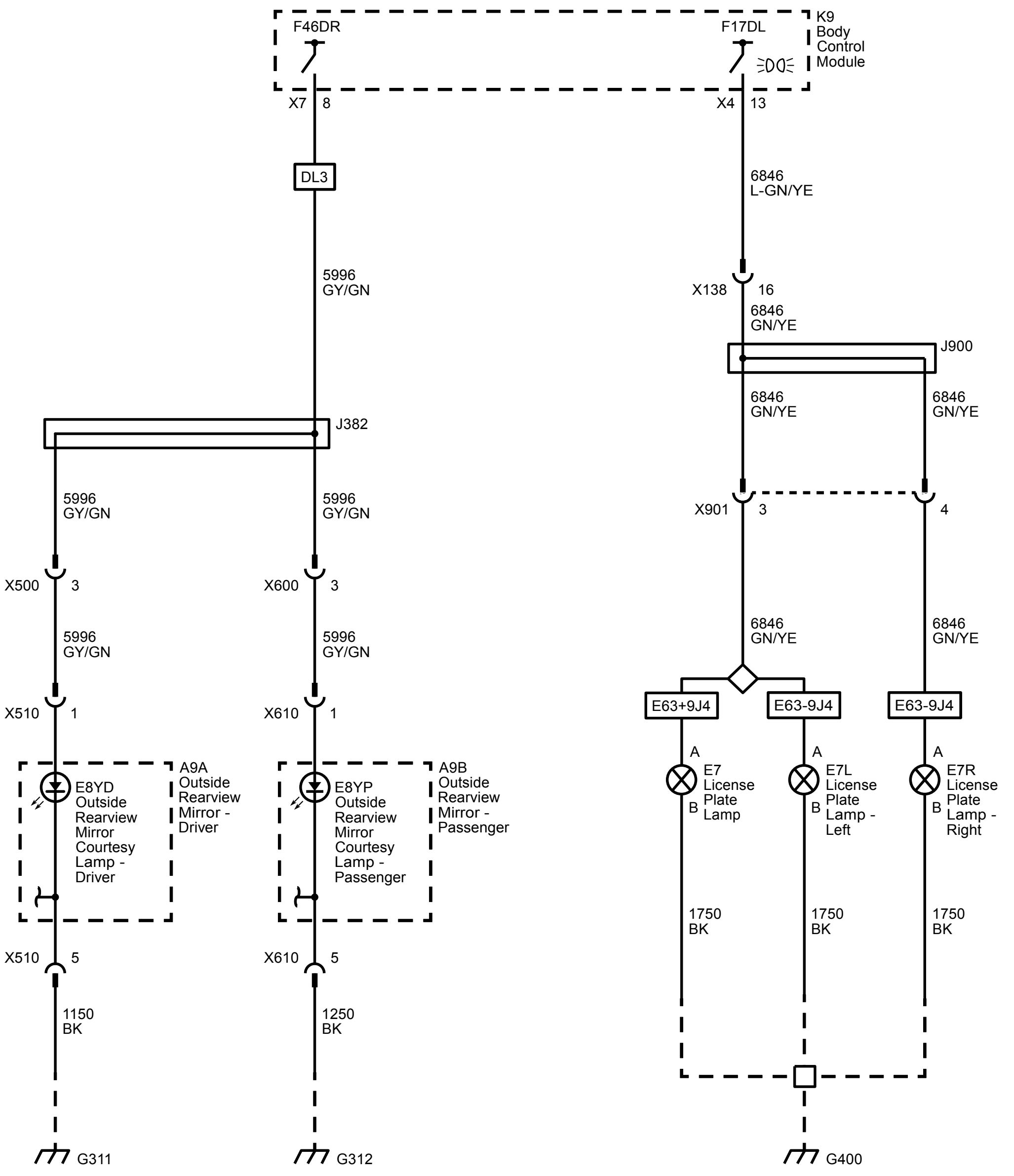

F17DL
F17DL
K9
Body
Control
Module
X6
26
1429
BN/WH
X4
11
X275
13
1429
BN/WH
5065
VT/WH
J215
1429
BN/WH
1429
BN/WH
B+
B+
X2
4
X3
K1
X51R
Fuse Block -
Instrument
Panel Right
X50A
Fuse Block -
Underhood
S48A
Multifunction
Switch -
Instrument
Panel
KR112
Cargo
Lamp
Relay
KR59
Stop
Lamp
Relay
F10DR
15A
F38UA
10A
X2
5
11
X3
M6
X5
M1
(Not Used)
X4
M5
1430
WH/VT
1054
VT/GY
X5
4
X2
33
X61A
Junction
Block -
Instrument
Panel
X3
7
35
1050
BK
1430
WH/VT
1054
VT/GY
550
BK
X317
1
2
1430
WH/VT
1054
VT/GY
E6
Center
High
Mounted
Stop
Lamp
1050
BK
X317
3
1050
BK
G210
G110

LOC
DESC

## Roof Cargo and Center High Mounted Stop Lamps (E29)

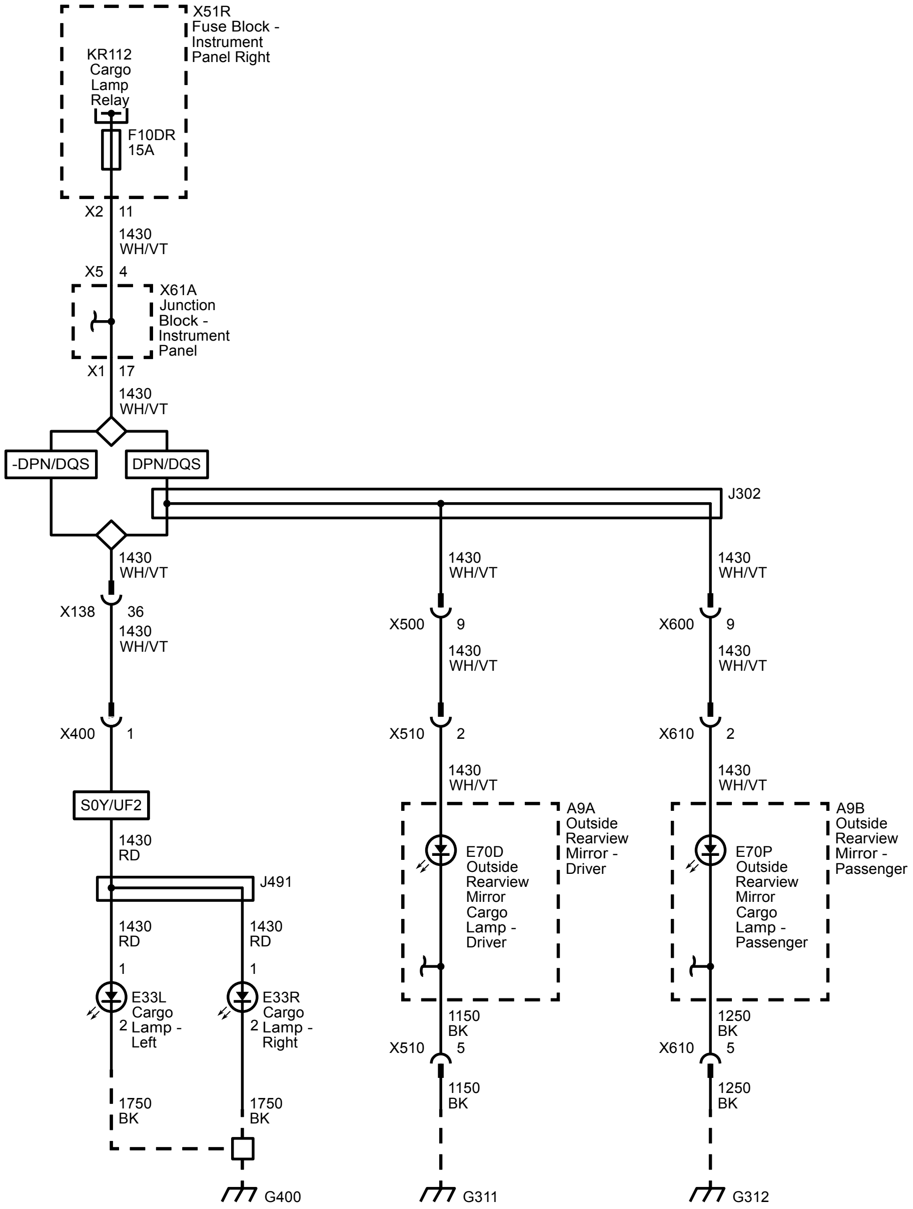

F17DL
F17DL
K9
Body
Control
Module
X6
26
1429
BN/WH
X4
11
X275
13
1429
BN/WH
5065
VT/WH
J215
1429
BN/WH
1429
BN/WH
X2
4
B+
B+
X3
K1
X51R
Fuse Block -
Instrument
Panel Right
X50A
Fuse Block -
Underhood
S48A
Multifunction
Switch -
Instrument
Panel
KR112
Cargo
Lamp
Relay
KR59
Stop
Lamp
Relay
F10DR
15A
F38UA
10A
X2
5
11
X3
M6
X5
M1
(Not Used)
X4
M5
1430
WH/VT
1054
VT/GY
X305
2
X206
6
1050
BK
1430
WH/VT
1054
VT/GY
550
BK
X317
1
2
1430
WH/VT
1054
VT/GY
E6
Center
High
Mounted
Stop
Lamp
1050
BK
X317
3
1050
BK
G210
G110

# Mirror Courtesy Lamps (DL3) and License Plate Lamps


K9 Body Control Module
F46DR
F17DL
X7 8
X4 13
DL3
5996 GY/GN
6846 L-GN/YE
X138 16
6846 GN/YE
J900
J382
6846 GN/YE
6846 GN/YE
5996 GY/GN
5996 GY/GN
X901 3
4
X500 3
X600 3
6846 GN/YE
6846 GN/YE
5996 GY/GN
5996 GY/GN
X510 1
X610 1
E63+9J4
E63-9J4
E63-9J4
A9A Outside Rearview Mirror - Driver
E8YD Outside Rearview Mirror Courtesy Lamp - Driver
A9B Outside Rearview Mirror - Passenger
E8YP Outside Rearview Mirror Courtesy Lamp - Passenger
A
B
E7 License Plate Lamp
A
B
E7L License Plate Lamp - Left
A
B
E7R License Plate Lamp - Right
1750 BK
1750 BK
1750 BK
X510 5
X610 5
1150 BK
1250 BK
G311
G312
G400

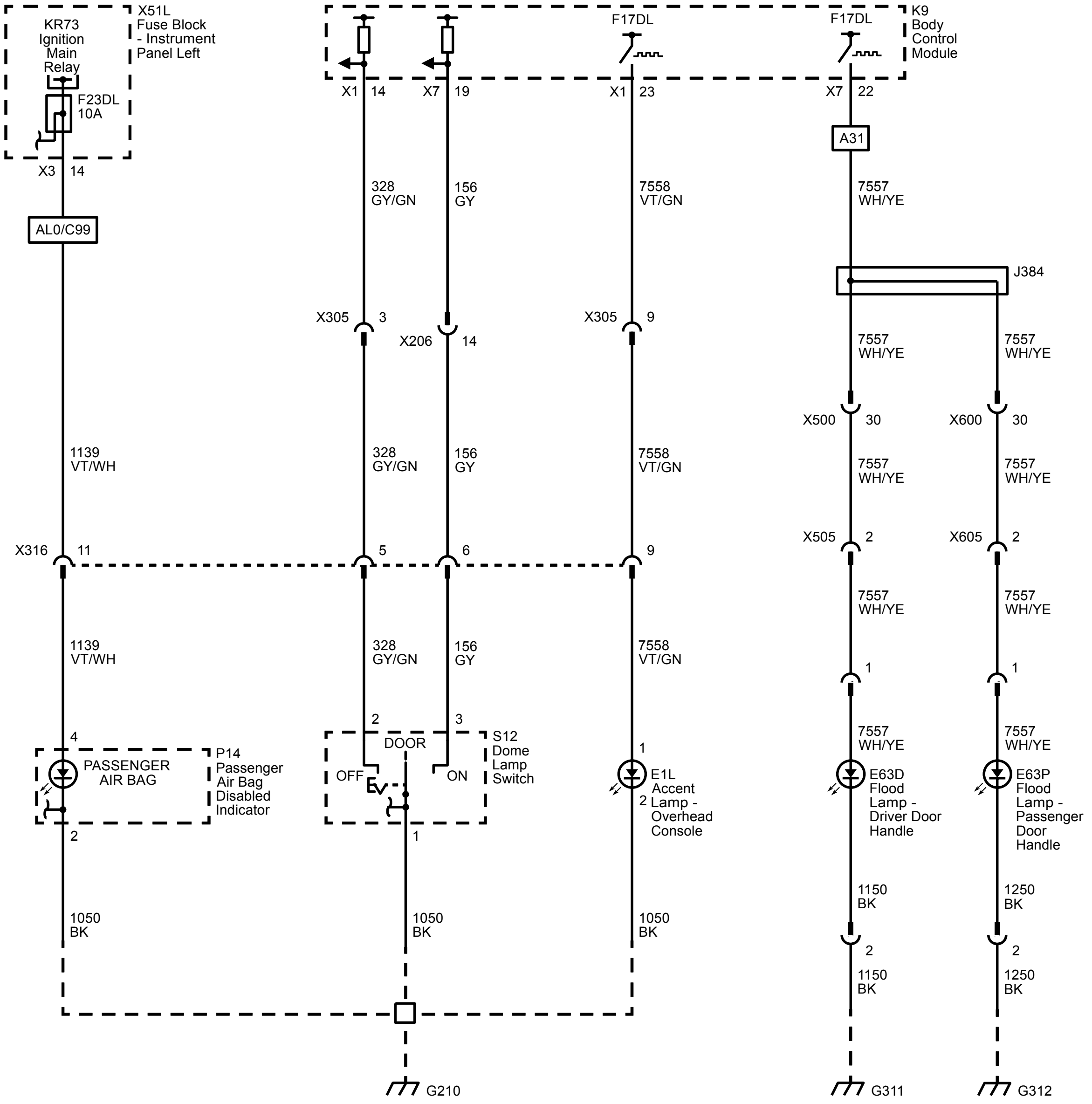
LOC
DESC

## Mirror Cargo Lamps (DPN or DQS) and Cargo Box Lamps (S0Y or UF2)

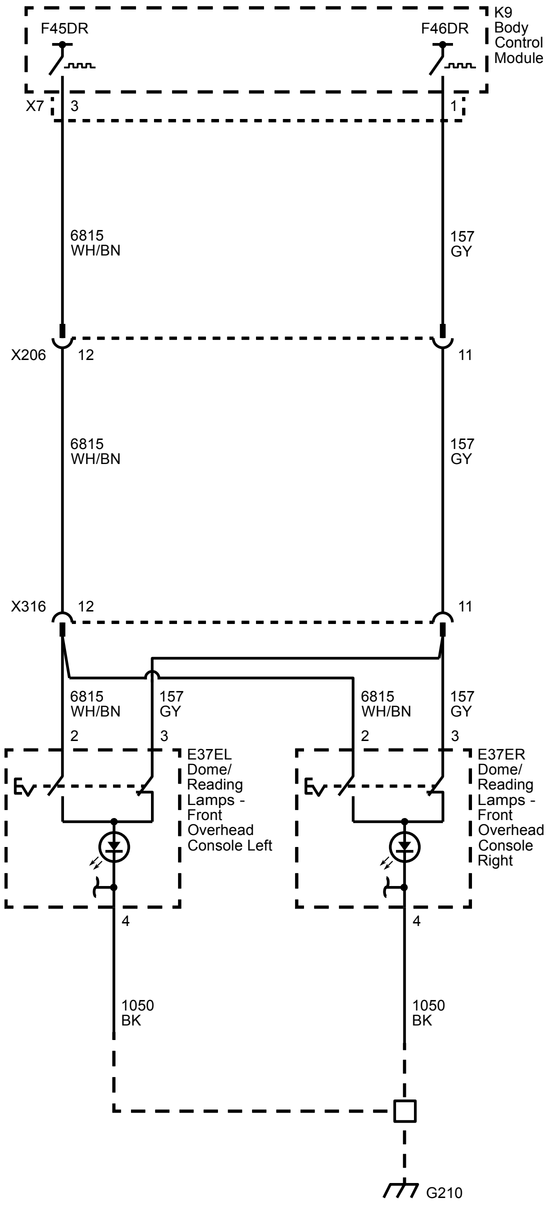

X51R
Fuse Block - Instrument Panel Right
KR112 Cargo Lamp Relay
F10DR 15A
X2 11
1430 WH/VT
X5 4
X61A Junction Block - Instrument Panel
X1 17
1430 WH/VT
-DPN/DQS
DPN/DQS
J302
1430 WH/VT
X138 36
1430 WH/VT
X400 1
S0Y/UF2
1430 RD
J491
1430 RD
1
E33L Cargo Lamp - Left
2
1430 RD
1
E33R Cargo Lamp - Right
2
1750 BK
1750 BK
G400
1430 WH/VT
X500 9
1430 WH/VT
X510 2
1430 WH/VT
A9A Outside Rearview Mirror - Driver
E70D Outside Rearview Mirror Cargo Lamp - Driver
1150 BK
X510 5
1150 BK
G311
1430 WH/VT
X600 9
1430 WH/VT
X610 2
1430 WH/VT
A9B Outside Rearview Mirror - Passenger
E70P Outside Rearview Mirror Cargo Lamp - Passenger
1250 BK
X610 5
1250 BK
G312

## Interior Lights Schematics (E29)

### Controls and Flood Lamps (E29)

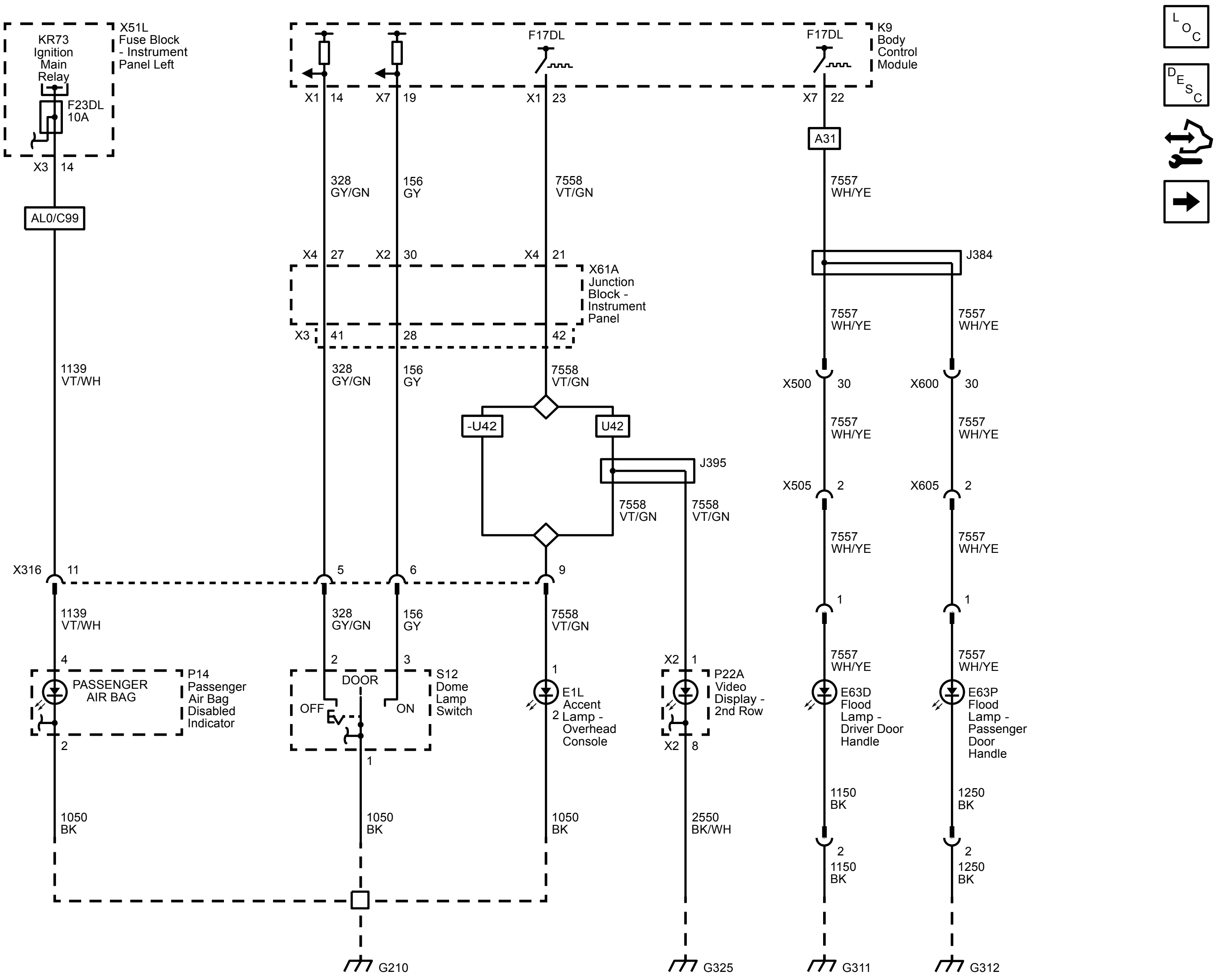


KR73
Ignition
Main
Relay
X51L
Fuse Block
- Instrument
Panel Left
F23DL
10A
X3 14
AL0/C99
1139
VT/WH
X316 11
1139
VT/WH
4
PASSENGER
AIR BAG
P14
Passenger
Air Bag
Disabled
Indicator
2
1050
BK
X1 14
328
GY/GN
X305 3
328
GY/GN
5
328
GY/GN
2
DOOR
OFF
ON
S12
Dome
Lamp
Switch
1
1050
BK
X7 19
156
GY
X206 14
156
GY
6
156
GY
3
G210
F17DL
X1 23
7558
VT/GN
X305 9
7558
VT/GN
9
7558
VT/GN
1
E1L
Accent
Lamp -
Overhead
Console
2
1050
BK
F17DL
K9
Body
Control
Module
X7 22
A31
7557
WH/YE
J384
7557
WH/YE
X500 30
7557
WH/YE
X505 2
7557
WH/YE
1
7557
WH/YE
E63D
Flood
Lamp -
Driver Door
Handle
1150
BK
2
1150
BK
G311
7557
WH/YE
X600 30
7557
WH/YE
X605 2
7557
WH/YE
1
7557
WH/YE
E63P
Flood
Lamp -
Passenger
Door
Handle
1250
BK
2
1250
BK
G312


K9
Body
Control
Module
F45DR
F46DR
X7
3
1
6815
WH/BN
157
GY
X206
12
11
6815
WH/BN
157
GY
X316
12
11
6815
WH/BN
157
GY
6815
WH/BN
157
GY
2
3
2
3
E37EL
Dome/
Reading
Lamps -
Front
Overhead
Console Left
E37ER
Dome/
Reading
Lamps -
Front
Overhead
Console
Right
4
4
1050
BK
1050
BK
G210

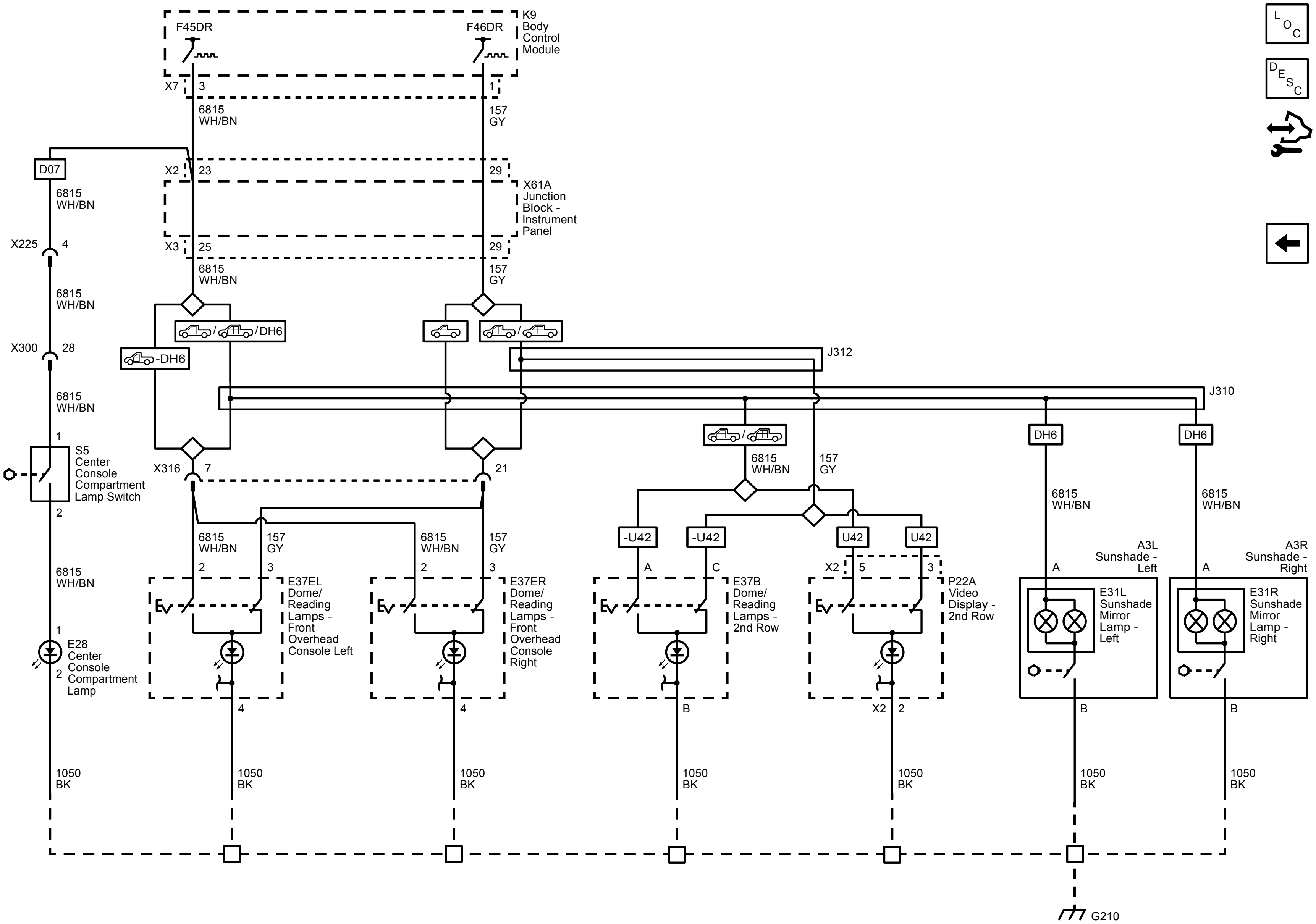
## Interior Lights Schematics (without E29)

### Controls and Flood Lamps (without E29)



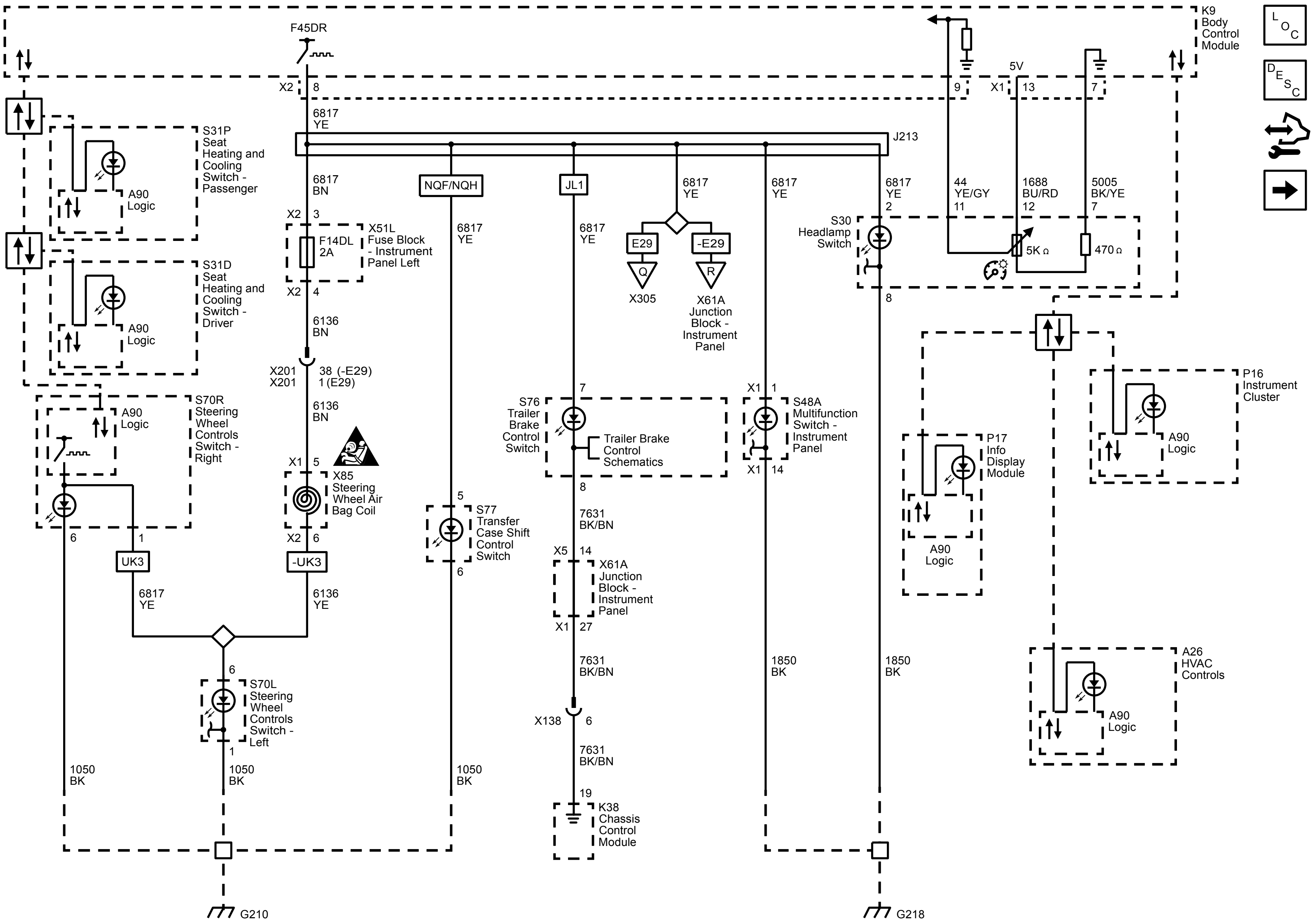
X51L Fuse Block - Instrument Panel Left
KR73 Ignition Main Relay
F23DL 10A
X3 14
AL0/C99
1139 VT/WH
K9 Body Control Module
X1 14
X7 19
F17DL
X1 23
X7 22
A31
328 GY/GN
156 GY
7558 VT/GN
7557 WH/YE
X61A Junction Block - Instrument Panel
X4 27
X2 30
X4 21
X3 41
28
42
J384
X500 30
X600 30
-U42
U42
J395
X505 2
X605 2
X316 11
5
6
9
1
4
PASSENGER AIR BAG
P14 Passenger Air Bag Disabled Indicator
2
3
DOOR
OFF
ON
S12 Dome Lamp Switch
E1L Accent Lamp - Overhead Console
X2 1
P22A Video Display - 2nd Row
X2 8
E63D Flood Lamp - Driver Door Handle
E63P Flood Lamp - Passenger Door Handle
1050 BK
2550 BK/WH
1150 BK
1250 BK
G210
G325
G311
G312

## Floor Console Compartment and Overhead Lamps (without E29)

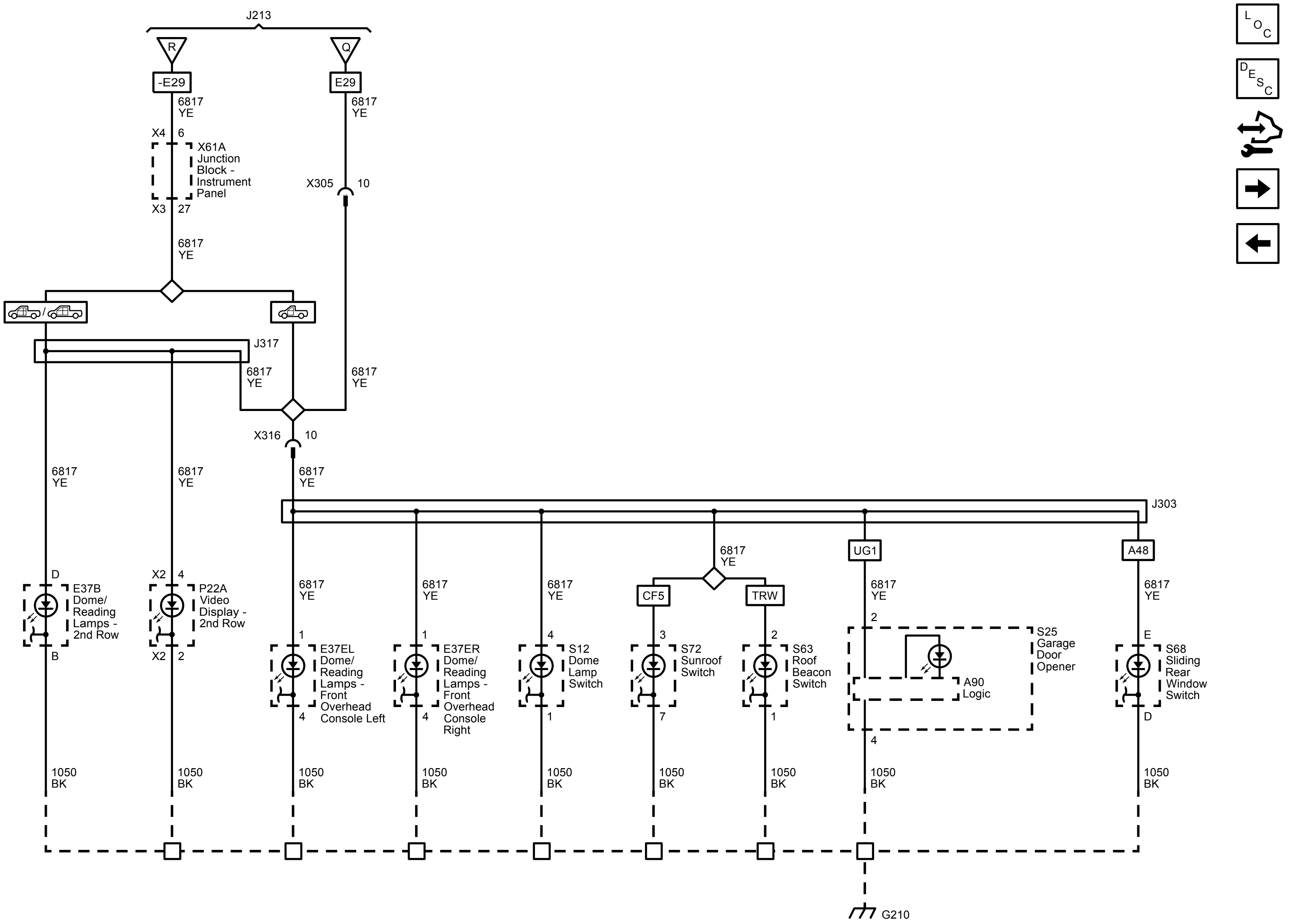

F45DR
F46DR
K9
Body
Control
Module
X7
3
1
6815
WH/BN
157
GY
D07
X2
23
29
X61A
Junction
Block -
Instrument
Panel
X3
25
29
6815
WH/BN
X225
4
6815
WH/BN
157
GY
/DH6
-DH6
X300
28
J312
J310
6815
WH/BN
1
S5
Center
Console
Compartment
Lamp Switch
2
X316
7
21
DH6
DH6
6815
WH/BN
157
GY
6815
WH/BN
6815
WH/BN
6815
WH/BN
157
GY
6815
WH/BN
157
GY
-U42
-U42
U42
U42
A3L
Sunshade -
Left
A3R
Sunshade -
Right
2
3
2
3
A
C
X2
5
3
A
A
6815
WH/BN
E37EL
Dome/
Reading
Lamps -
Front
Overhead
Console Left
E37ER
Dome/
Reading
Lamps -
Front
Overhead
Console
Right
E37B
Dome/
Reading
Lamps -
2nd Row
P22A
Video
Display -
2nd Row
E31L
Sunshade
Mirror
Lamp -
Left
E31R
Sunshade
Mirror
Lamp -
Right
1
E28
Center
Console
Compartment
Lamp
2
4
4
B
X2
2
B
B
1050
BK
1050
BK
1050
BK
1050
BK
1050
BK
1050
BK
1050
BK
G210

# Interior Lights Dimming Schematics

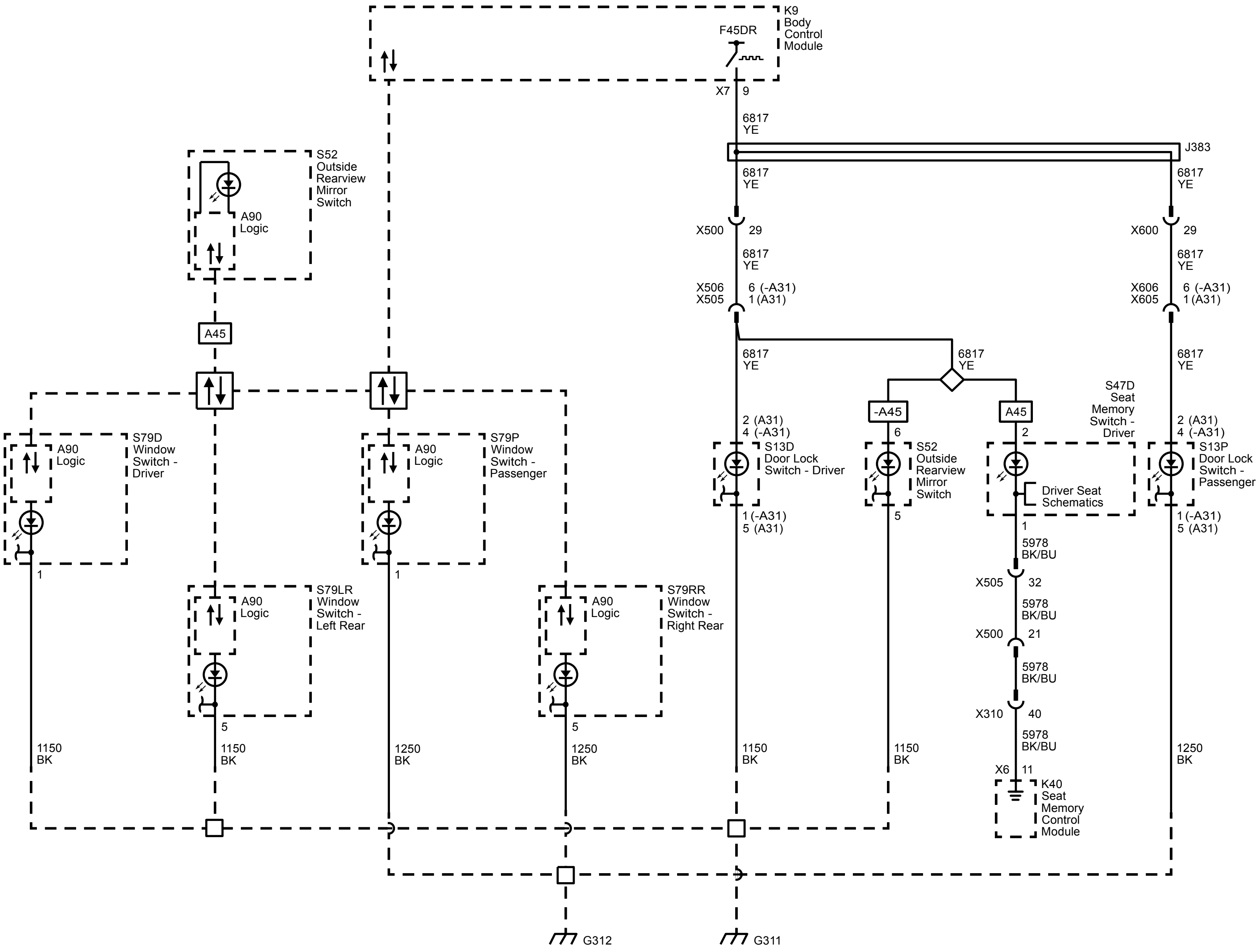
## Controls and Backlight - Instrument Panel


K9
Body
Control
Module
F45DR
X2 8
6817
YE
J213
9
5V
X1 13
7
S31P
Seat
Heating and
Cooling
Switch -
Passenger
A90
Logic
6817
BN
X2 3
F14DL
2A
X51L
Fuse Block
- Instrument
Panel Left
X2 4
NQF/NQH
6817
YE
JL1
6817
YE
6817
YE
E29
-E29
Q
R
X305
X61A
Junction
Block -
Instrument
Panel
6817
YE
6817
YE
2
44
YE/GY
11
1688
BU/RD
12
5005
BK/YE
7
S30
Headlamp
Switch
5K Ω
470 Ω
8
S31D
Seat
Heating and
Cooling
Switch -
Driver
A90
Logic
6136
BN
X201
X201
38 (-E29)
1 (E29)
6136
BN
X1 5
X85
Steering
Wheel Air
Bag Coil
X2 6
-UK3
6136
YE
S70R
Steering
Wheel
Controls
Switch -
Right
A90
Logic
6
1
UK3
6817
YE
S70L
Steering
Wheel
Controls
Switch -
Left
6
1
1050
BK
1050
BK
5
S77
Transfer
Case Shift
Control
Switch
6
1050
BK
7
S76
Trailer
Brake
Control
Switch
Trailer Brake
Control
Schematics
8
7631
BK/BN
X5 14
X61A
Junction
Block -
Instrument
Panel
X1 27
7631
BK/BN
X138 6
7631
BK/BN
19
K38
Chassis
Control
Module
X1 1
S48A
Multifunction
Switch -
Instrument
Panel
X1 14
1850
BK
1850
BK
G210
G218
P17
Info
Display
Module
A90
Logic
P16
Instrument
Cluster
A90
Logic
A26
HVAC
Controls
A90
Logic
L O C
D E S C

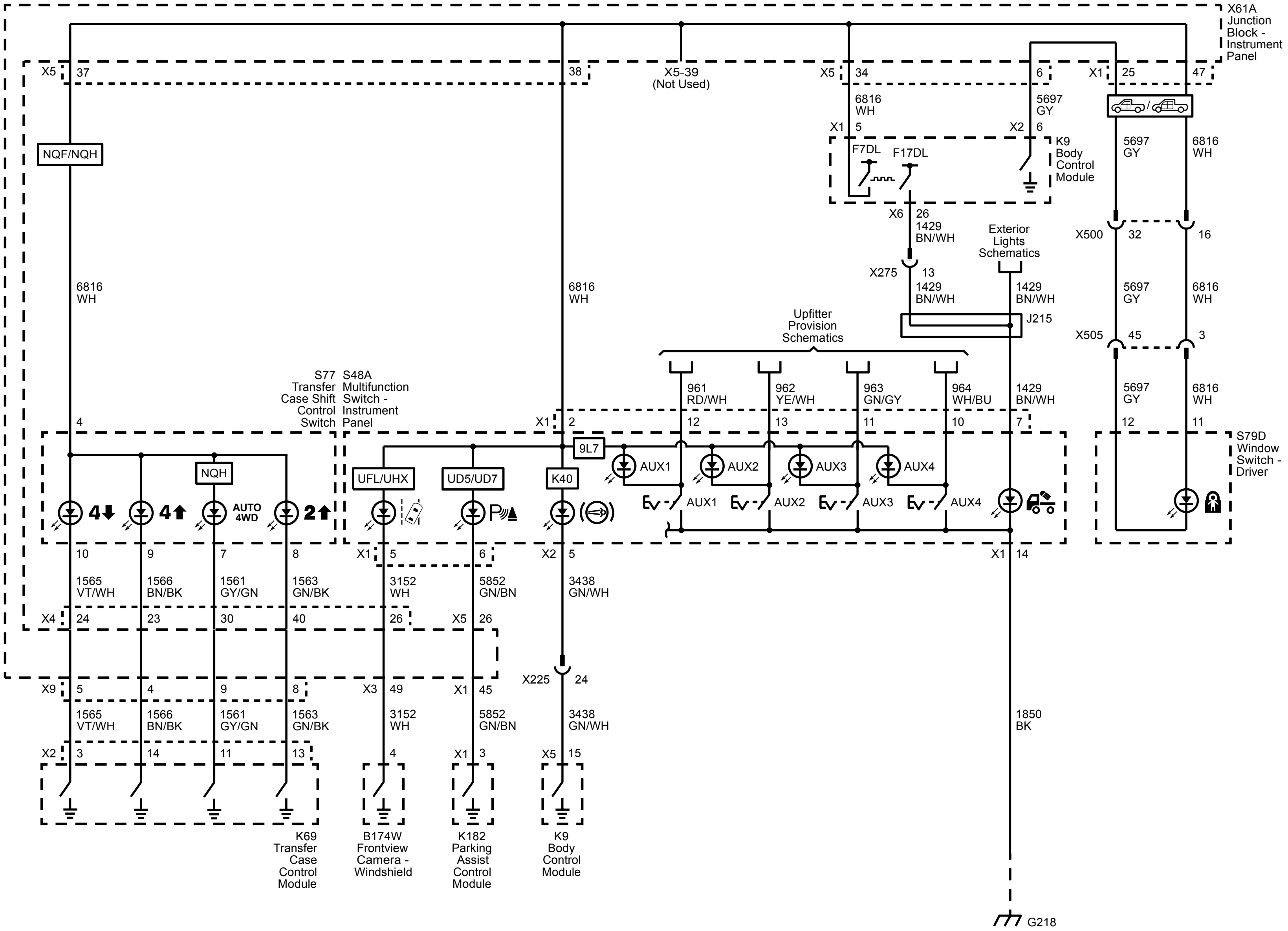
# Backlight - Overhead Lamps

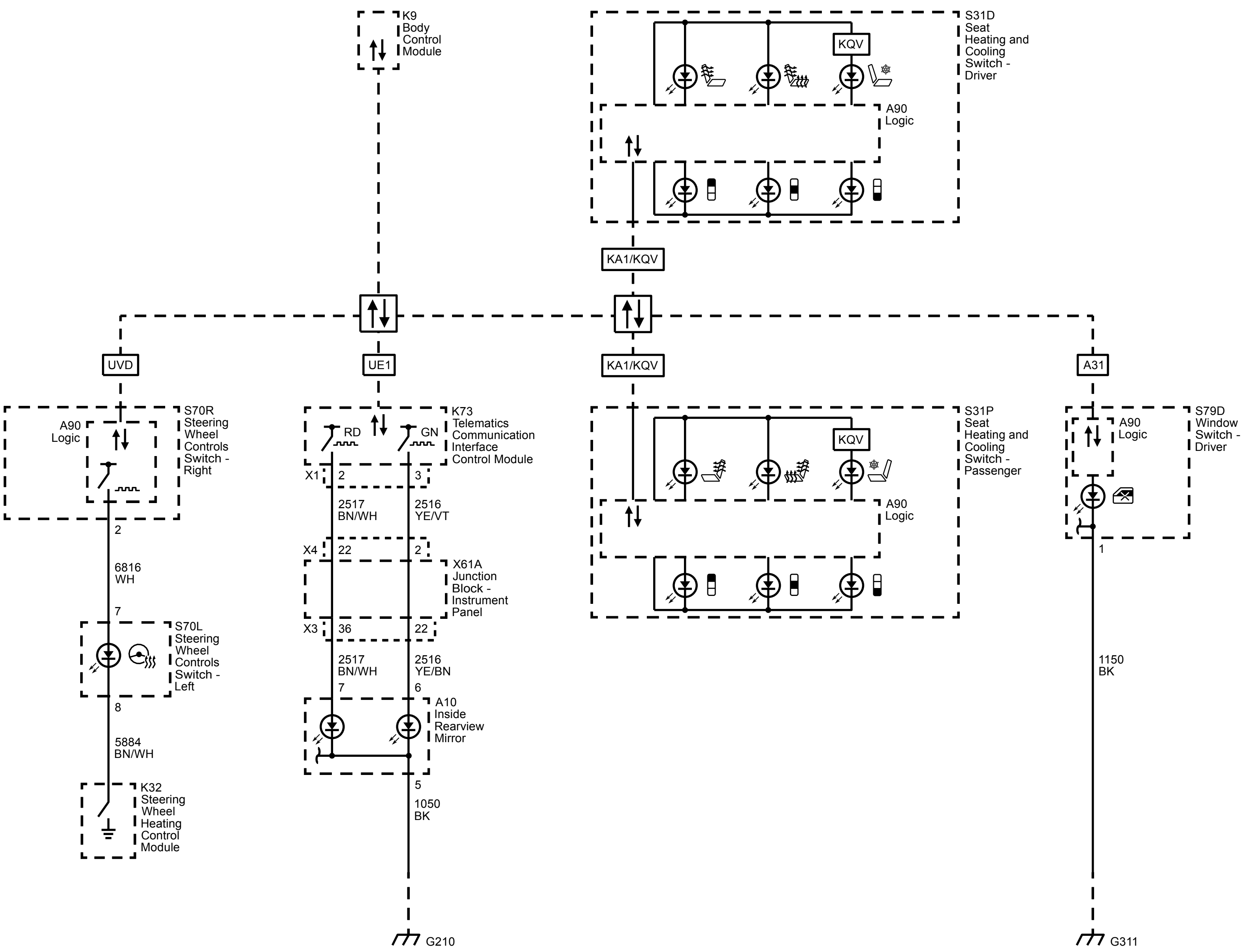

J213
R
Q
-E29
E29
6817
YE
X4
6
X61A
Junction
Block -
Instrument
Panel
X3
27
X305
10
J317
X316
10
J303
E37B
Dome/
Reading
Lamps -
2nd Row
D
B
P22A
Video
Display -
2nd Row
X2
4
X2
2
E37EL
Dome/
Reading
Lamps -
Front
Overhead
Console Left
E37ER
Dome/
Reading
Lamps -
Front
Overhead
Console
Right
S12
Dome
Lamp
Switch
CF5
TRW
S72
Sunroof
Switch
S63
Roof
Beacon
Switch
UG1
S25
Garage
Door
Opener
A90
Logic
A48
S68
Sliding
Rear
Window
Switch
1050
BK
G210

## Backlight - Doors


K9
Body
Control
Module
F45DR
X7
9
6817
YE
J383
6817
YE
6817
YE
X500
29
X600
29
6817
YE
6817
YE
X506
X505
6 (-A31)
1 (A31)
X606
X605
6 (-A31)
1 (A31)
6817
YE
6817
YE
6817
YE
S47D
Seat
Memory
Switch -
Driver
-A45
A45
6
2
2 (A31)
4 (-A31)
2 (A31)
4 (-A31)
S13D
Door Lock
Switch - Driver
S52
Outside
Rearview
Mirror
Switch
Driver Seat
Schematics
S13P
Door Lock
Switch -
Passenger
1 (-A31)
5 (A31)
5
1
1 (-A31)
5 (A31)
5978
BK/BU
X505
32
5978
BK/BU
X500
21
5978
BK/BU
X310
40
5978
BK/BU
X6
11
K40
Seat
Memory
Control
Module
S52
Outside
Rearview
Mirror
Switch
A90
Logic
A45
A90
Logic
S79D
Window
Switch -
Driver
A90
Logic
S79P
Window
Switch -
Passenger
1
1
A90
Logic
S79LR
Window
Switch -
Left Rear
A90
Logic
S79RR
Window
Switch -
Right Rear
5
5
1150
BK
1150
BK
1250
BK
1250
BK
1150
BK
1150
BK
1250
BK
G312
G311

## Indicators - Discrete


X61A Junction Block - Instrument Panel
X5 37
38
X5-39 (Not Used)
X5 34
6
X1 25
47
NQF/NQH
6816 WH
6816 WH
6816 WH
5697 GY
X1 5
X2 6
F7DL
F17DL
K9 Body Control Module
5697 GY
6816 WH
X6 26
1429 BN/WH
X500 32
16
X275 13
1429 BN/WH
Exterior Lights Schematics
1429 BN/WH
J215
5697 GY
6816 WH
X505 45
3
Upfitter Provision Schematics
961 RD/WH
962 YE/WH
963 GN/GY
964 WH/BU
1429 BN/WH
5697 GY
6816 WH
S77 Transfer Case Shift Control Switch
S48A Multifunction Switch - Instrument Panel
4
X1 2
12
13
11
10
7
12
11
S79D Window Switch - Driver
9L7
AUX1
AUX2
AUX3
AUX4
NQH
UFL/UHX
UD5/UD7
K40
4⬇
4⬆
AUTO 4WD
2⬆
AUX1
AUX2
AUX3
AUX4
10
9
7
8
X1 5
6
X2 5
X1 14
1565 VT/WH
1566 BN/BK
1561 GY/GN
1563 GN/BK
3152 WH
5852 GN/BN
3438 GN/WH
X4 24
23
30
40
26
X5 26
X225 24
X9 5
4
9
8
X3 49
X1 45
1565 VT/WH
1566 BN/BK
1561 GY/GN
1563 GN/BK
3152 WH
5852 GN/BN
3438 GN/WH
1850 BK
X2 3
14
11
13
4
X1 3
X5 15
K69 Transfer Case Control Module
B174W Frontview Camera - Windshield
K182 Parking Assist Control Module
K9 Body Control Module
G218


K9
Body
Control
Module
S31D
Seat
Heating and
Cooling
Switch -
Driver
KQV
A90
Logic
KA1/KQV
UVD
UE1
KA1/KQV
A31
S70R
Steering
Wheel
Controls
Switch -
Right
A90
Logic
2
6816
WH
7
S70L
Steering
Wheel
Controls
Switch -
Left
8
5884
BN/WH
K32
Steering
Wheel
Heating
Control
Module
RD
GN
K73
Telematics
Communication
Interface
Control Module
X1
2
3
2517
BN/WH
2516
YE/VT
X4
22
2
X61A
Junction
Block -
Instrument
Panel
X3
36
22
2517
BN/WH
2516
YE/BN
7
6
A10
Inside
Rearview
Mirror
5
1050
BK
G210
S31P
Seat
Heating and
Cooling
Switch -
Passenger
KQV
A90
Logic
S79D
Window
Switch -
Driver
A90
Logic
1
1150
BK
G311

# Description and Operation

## Exterior Lighting Systems Description and Operation

The exterior lighting system consist of the following lamps:

- Automatic high beam assist
- Backup lamps
- Daytime running lamps
- Front fog lamps
- Hazard warning lamps
- Headlamps
- Park, tail, license, and marker lamps
- Stop lamps
- Turn signal lamps
- Trailer lighting

### Low Beam Headlamps

The headlamps may be turned ON in 3 different ways:

- When the headlamp switch is placed in the ON position, for normal operation
- When the headlamp switch is placed in the AUTO position, for automatic lamp control
- When the headlamp switch is placed in the AUTO position, with the windshield wipers ON in daylight conditions, after a 6 second delay

The BCM will also command the low beam headlamps ON during daylight conditions when the following conditions are met:

- Headlamp switch in the AUTO position
- Windshield wipers ON
- Vehicle in any gear but PARK

When the BCM commands the low beam headlamps ON, the vehicle operator will notice the interior backlighting for the instrument cluster and the various switches with backlighting control will dim to the level of brightness selected by the instrument panel dimmer switch.

The body control module (BCM) monitors three signal circuits from the headlamp switch. When the headlamp switch is in the AUTO position, all three signal circuits are open. When placed in the AUTO position, the BCM monitors inputs from the ambient light sensor to determine if headlamps are required or if daytime running lamps will be activated based on outside lighting conditions. When the headlamp switch is placed in the OFF position, the headlamp switch headlamps OFF signal circuit is grounded, indicating to the BCM that the exterior lamps should be turned OFF. With the headlamp switch in the PARK position, the headlamp switch park lamps ON signal circuit is grounded, indicating that the park lamps have been requested. When the headlamp switch is placed in the HEADLAMP position, both the headlamp switch park lamps ON signal circuit and the headlamp switch headlamps ON signal circuit are grounded. The BCM responds to the inputs by illuminating the park lamps and headlamps. When the low beam headlamps are requested, the BCM applies B+ to both low beam headlamp control circuits illuminating the low beam headlamps.

### High Beam Headlamps (Chevrolet)

When the low beam headlamps are ON and the turn signal/multifunction switch is placed in the high beam position, ground is applied to the BCM through the high beam signal circuit. The BCM responds to the high beam request by applying ground to the high beam relay control circuit which energizes the high beam relay. With the high beam relay energized, the switch contacts close allowing battery voltage to flow through the 3 pin high beam fuse to the high beam control circuits illuminating the left and right high beam headlamps.

### High Beam Headlamps (GMC)

When the low beam headlamps are ON and the turn signal/multifunction switch is placed in the high beam position, ground is applied to the BCM through the high beam signal circuit. The BCM responds to the high beam request by applying ground to the high beam relay control circuit which energizes the high beam relay. With the high beam relay energized, the switch contacts close allowing battery voltage to flow through the 3 pin high beam fuse to the high beam control circuits and on to the left and right headlamp high beam control modules located within the headlamp assemblies. The headlamp high beam control modules respond by applying voltage to there respective high beam solenoid actuators located within the headlamp assemblies. With the left and right high beam solenoid actuators active, the solenoid shutters open in each headlamp assembly exposing the remaining portion of the headlamp that was covered by the shutters illuminating the high beams at full intensity.

### Automatic High Beam Assist (AHBA)

The automatic high beam assist (AHBA) system operates the high beam headlamps ON and OFF automatically when the system is activated and certain conditions are met. The AHBA system consists of a front camera module that detects light and is able to identify approaching vehicles on an even, straight road at a distance of greater than 0.4 km (0.25 mi). The front camera module analyzes light color, intensity, and movement. The AHBA system will turn OFF the high beam headlamps when approaching vehicle headlamps or preceding vehicle taillights are detected by the front camera module. AHBA can be deactivated when the headlamp dimmer switch is moved from the neutral position to the high beam or flash to pass positions. AHBA can be reactivated by operating the high beam select switch from the neutral position to the high beam position twice within 2 seconds.

#### AHBA System Activation

- Vehicle ON
- Headlamp switch placed in the AUTO position
- Headlamp dimmer switch must be in the neutral position

- Outside lighting conditions must be dark
- Vehicle speed greater than 25 mph (40 km/h)

### AHBA System Operation

The following are conditions that the AHBA system will turn the high beam headlamps off during operation:

- The system detects approaching traffic headlamps
- The system detects preceding traffic tail lamps
- Ambient light level too high due to towns or twilight situations
- The vehicle's speed drops below 13 mph (22 km/h)
- Delay

**Note:** AHBA may not operate properly if any of the following conditions exist:

- Approaching and preceding vehicles lamps are undetectable due to dirt, snow, road spray, smoke, fog, or any other airborne conditions.
- The front camera module is covered with ice, dirt, snow, haze, or is obstructed.
- The vehicle is being driven on winding or hilly road conditions which would make any on coming vehicle headlamps undetectable by the AHBA.

### AHBA System Deactivation

- Manually operating the headlamp dimmer switch from neutral to high beam position
- AHBA is deactivated automatically when the front or rear fog lamps are turned ON

### AHBA System Indicator

The status of the AHBA system is shown by a green indicator located on the instrument panel cluster. When AHBA is active, the indicator will be illuminated continuously. If the operator deactivates the AHBA system, the indicator will turn off.

## Daytime Running Lamps

The daytime running lamps will illuminate continuously when the following conditions are met:

- The ignition is in the RUN or CRANK position
- The shift lever is out of the PARK position for vehicles equipped with automatic transmissions or the parking brake is released for vehicles with manual transmissions
- The low and high beam headlamps are OFF

### Daytime Running Lamps (Base)

The ambient light sensor is used to monitor outside lighting conditions. The ambient light sensor provides a voltage signal that will vary between 0.2 and 4.9 volts depending on outside lighting conditions. The body control module (BCM) provides a 5 V reference signal to the ambient light sensor and the HVAC control module provides a low reference ground. The BCM monitors the ambient light sensor signal circuit to determine if outside lighting conditions are correct for either daytime running lights or automatic lamp control when the headlamp switch is in the AUTO position. In daylight conditions the BCM will command the low beam headlamps ON. Any function or condition that turns on the headlamps will cancel daytime running lamps operation.

### Daytime Running Lamps (GMC with SLT)

The ambient light sensor is used to monitor outside lighting conditions. The ambient light sensor provides a voltage signal that will vary between 0.2 and 4.9 volts depending on outside lighting conditions. The body control module (BCM) provides a 5 V reference signal to the ambient light sensor and the HVAC control module provides a low reference ground. The BCM monitors the ambient light sensor signal circuit to determine if outside lighting conditions are correct for either daytime running lights or automatic lamp control when the headlamp switch is in the AUTO position. In daylight conditions the BCM applies B+ to both daytime running lamp control circuits to the left and right multifunction light emitting diode (LED) control modules located in each headlamp assembly. The multifunction LED control modules respond the to the B+ input from the BCM by illuminating the left and right daytime running lamp LED's. Any function or condition that turns on the low beam headlamps will cancel daytime running lamps operation.

## Flash to Pass

When the turn signal/multifunction switch is momentarily placed in the flash to pass position, ground is applied to the turn signal/multifunction switch. The turn signal/multifunction switch applies ground to the body control module (BCM) through the flash to pass switch signal circuit. The BCM responds to the flash to pass request by applying ground to the high beam relay control circuit. This energizes the high beam relay, closing the switch side contacts of the high beam relay, applying battery voltage to the 3 pin high beam fuse. Battery voltage is applied from the high beam fuse through the high beam control circuit to the high beam headlamp assemblies. This causes the high beam headlamps to illuminate at full brightness momentarily.

## Front Fog Lamps

The front fog lamp relay is supplied with battery voltage at all times. The front fog lamp switch signal circuit is grounded momentarily by pressing the front fog lamp switch. The body control module (BCM) energizes the front fog lamp relay by applying ground to the front fog lamp relay control circuit. When the front fog lamp relay is energized, the relay switch contacts close and battery voltage is applied through the front fog lamp fuse to the front fog lamp supply voltage circuit which illuminates the front fog lamps.

## Hazard Lamps

The hazard flashers may be activated in any power mode. The hazard switch signal circuit is momentarily grounded when the hazard switch is pressed. The body control module (BCM) responds to the hazard switch signal input by supplying battery voltage to all four turn signal lamps in an ON and OFF duty cycle. When the hazard switch is activated, the BCM sends a serial data message to the instrument panel cluster requesting both turn signal indicators to be cycled ON and OFF.

The instrument panel dimmer switch controls the brightness of the interior backlighting components. When the instrument panel dimmer switch is placed in a desired brightness position, the body control module (BCM) receives a signal from the instrument panel dimmer switch and responds by applying a pulse width modulated voltage to the hazard switch light emitting diode (LED) backlighting control circuit illuminating the LED to the desired level of brightness.

## Park, Tail, and License Lamps

When the headlamp switch is placed in the HEAD or PARK position, ground is applied to the park lamp switch ON signal circuit to the body control module (BCM). The BCM responds by applying voltage to the park lamps, tail lamps, and license lamps control circuits illuminating the park, tail, and license lamps.

## Stop Lamps

The brake pedal position sensor is used to sense the action of the driver application of the brake pedal. The brake pedal position sensor provides an analog voltage signal that will increase as the brake pedal is applied. The body control module (BCM) provides a low reference signal and a 5 V reference voltage to the brake pedal position sensor. When the variable signal reaches a voltage threshold indicating the brakes have been applied, the BCM will apply battery voltage to the left and right stop lamp control circuits as well as the center high mounted stop lamp control circuit illuminating the left and right stop lamps and the center high mounted stop lamp.

## Turn Signal Lamps

Ground is applied at all times to the turn signal/multifunction switch. The turn signal lamps may only be activated with the ignition switch in the ON or START positions. When the turn signal/multifunction switch is placed in either the TURN RIGHT or TURN LEFT position, ground is applied to the body control module (BCM) through either the right turn or left turn signal switch signal circuit. The BCM responds to the turn signal switch input by applying a pulsating voltage to the front and rear turn signal lamps through there respective control circuits. When a turn signal request is received by the BCM, a serial data message is sent to the instrument cluster requesting the respective turn signal indicator be pulsed ON and OFF.

## Backup Lamps

### Automatic Transmission

With the engine ON and the transmission in the REVERSE position, the transmission control module (TCM) sends a serial data message to the body control module (BCM). The message indicates that the gear selector is in the REVERSE position. The BCM applies battery voltage to the backup lamps control circuit illuminating the backup lamps. Once the driver moves the gear selector out of the REVERSE position, a message is sent by the TCM via serial data requesting the BCM to remove battery voltage from the backup lamps control circuit. The engine must be ON for the backup lamps to operate.

### Manual Transmission

The engine control module (ECM) provides a signal circuit to the backup lamp switch which is permanently grounded. With the engine running and the transmission in the reverse position, the backup lamp switch signal circuit is pulled low and the ECM responds by sending a serial data message to the body control module (BCM). The message indicates that the gear selector is in the reverse position. The BCM energizes the backup lamp relay by applying battery voltage to the backup lamp relay control circuit. When the backup lamp relay is energized, the relay switch contacts close and battery voltage is applied through the backup lamp fuses to the backup lamp control circuits which illuminates the backup lamps. Once the driver moves the gear selector out of the reverse position, a message is sent by the ECM via serial data requesting the BCM to remove battery voltage from the backup lamp relay control circuit. The engine must be running for the backup lamps to operate.

## Trailer Lighting

### Backup Lamps

For backup lamp operation, the backup lamp relay is supplied with battery voltage at all times. With the engine running and the transmission in the reverse position, the transmission control module (TCM) sends a serial data message to the body control module (BCM). The message indicates that the gear selector is in the reverse position. The BCM energizes the backup lamp relay by applying battery voltage to the backup lamp relay control circuit. When the backup lamp relay is energized, the relay switch contacts close and battery voltage is applied through the backup lamp fuses to the backup lamp control circuits which illuminates the backup lamps. Once the driver moves the gear selector out of the reverse position, a message is sent by the TCM via serial data requesting the BCM to remove battery voltage from the backup lamp relay control circuit.

### Park Lamps

When the headlamp switch is placed in the HEAD or PARK position, ground is applied to the park lamp switch ON signal circuit to the body control module (BCM). The BCM responds by applying voltage to the park lamps, tail lamps, license lamps, and trailer park lamps control circuits illuminating the park, tail, license, and trailer park lamps.

### Stop Lamps

For stop lamp operation, the left and right trailer stop/turn signal lamp relay’s are supplied with battery voltage at all times. The brake pedal position sensor is used to sense the action of the driver application of the brake pedal. The brake pedal position sensor provides an analog voltage signal that will increase as the brake pedal is applied. The body control module (BCM) provides a low reference signal and a 5 V reference voltage to the brake pedal position sensor. When the variable signal reaches a voltage threshold indicating the brakes have been applied, the BCM energizes the left and right trailer stop/turn signal lamp relay’s by applying voltage to the left and right stop lamp relay control circuits. With the left and right trailer stop/turn signal lamp relay’s energized, the relay switch contacts close and battery voltage is applied through the left and right trailer stop/turn signal fuse’s to the trailer stop lamp control circuits which illuminates the trailer stop lamps.

### Turn Signal Lamps

For turn signal lamp operation, the left and right trailer stop/turn signal lamp relay’s are supplied with battery voltage at all times. Ground is applied at all times to the turn signal/multifunction switch. The turn signal lamps may only be activated with the ignition switch in the ON or START positions. When the turn signal/multifunction switch is placed in either the TURN RIGHT or TURN LEFT position, ground is applied to the body control module (BCM) through either the right turn or left turn signal switch signal circuit. The BCM responds to the turn signal switch input by applying a pulsating voltage to the left and right trailer stop/turn signal lamp relay control circuits energizing the relay’s in an ON and OFF cycle. With the left and right trailer stop/turn signal lamp relay’s energized, the relay switch contacts cycle ON and OFF applying battery voltage through the left and right trailer stop/turn signal fuse’s to the trailer turn signal lamp control circuits which illuminates the trailer turn signal lamps in an ON and OFF cycle.

## Trailer Lighting (Export)

The trailer lighting control module is supplied with battery voltage as well as ignition voltage from the rear body fuse block and is permanently grounded. For lighting operation, the trailer lighting control module receives serial data messages from the body control module (BCM) indicating what lamps have been activated on the vehicle. The trailer lighting control module responds by applying voltage to the appropriate control circuits for the requested lamps illuminating the lamps on the attached trailer.

For stop lamp operation, the trailer lighting control module receives an input from the center high mount stop lamp control circuit. When the brakes are applied on the vehicle, the trailer lighting control module receives the brake applied input from the center high mount stop lamp control circuit. The trailer lighting control module responds by applying voltage to the trailer stop lamp control circuit illuminating the trailer stop lamps. The trailer lighting control module also receives a serial data message from the BCM indicating that the vehicle brakes have been applied.

## Battery Run Down Protection/Inadvertent Power

To provide battery run down protection, the exterior lamps will be deactivated automatically under certain conditions. The BCM monitors the state of the headlamp switch. If the park or headlamp switch is ON when the ignition switch is placed in either the CRANK or RUN position and then placed in the OFF position, the BCM initiates a 10 minute timer. At the end of the 10 minutes, the BCM will turn off the control power output to the park lamp controls as well as the headlamp relay coils, deactivating the exterior lamps. This feature will be cancelled if any power mode other than OFF becomes active. The BCM will disable battery run down protection if any of the following conditions exist. The park or headlamp switch is placed in the ON to OFF position, and back to the ON position during battery run down protection. The BCM determined that the park or headlamp switch was not active when the ignition was turned OFF.

# Interior Lighting Systems Description and Operation

## Interior Lamps

The interior lighting system consist of two groups. This first group includes lamps that may not be dimmed.

- Dome lamps
- Center console compartment lamps
- Reading lamps
- Sunshade mirror lamps

## Dome Lamps

The dome lamp switch has 3 positions: DOOR, OFF, and ON. The ON position provides a ground for continuous operation and the dome lamp will remain illuminated until the switch is placed in either the DOOR or OFF position. When in the DOOR position, the dome lamp operation is controlled by the body control module (BCM). When any door is opened, the door ajar switch contacts close and the BCM receives a door-open input. The BCM illuminates the dome lamp when any door is opened or a door lock/unlock request is activated with the key fob. After all doors have been closed, the dome lamp will remain illuminated approximately 3 seconds after the last door closes. When the driver places the dome lamp switch in the OFF position, the dome lamp will be disabled. In the event that the dome lamp were to remain illuminated for more than 10 minutes with the ignition switch in the OFF position and no doors opened, the BCM will deactivate the dome lamp control circuit to prevent total battery discharge. The dome lamps will turn OFF using the theater dimming feature when controlled by the BCM.

## Center Console Compartment Lamp

The inadvertent power supply voltage circuit from the BCM provides battery voltage to the center console compartment lamp. When the center console is opened, the center console compartment lamp switch contacts close providing a path to ground and the center console compartment lamp illuminates. If the operator inadvertently leaves the center console compartment door open with the center console compartment lamp ON, the BCM will turn all interior lamps OFF after 10 minutes has passed since any switch activation has been detected by the BCM.

## Reading Lamps

The inadvertent power supply voltage circuit from the BCM provides battery positive voltage to each reading lamp. When a reading lamp switch is activated, the switch contacts close providing a path to ground and the reading lamp illuminates. If the operator inadvertently leaves a reading lamp ON, the BCM will turn all interior lamps OFF after 10 minutes has passed since any switch activation has been detected by the BCM.

## Sunshade Mirror Lamps

The inadvertent power supply voltage circuit from the BCM provides battery voltage to each set of sunshade mirror lamps. When the sunshade mirror cover is opened, a switch closes providing ground and the sunshade lamps illuminate. If the operator inadvertently leaves a sunshade mirror cover open with the lamps ON, the BCM will turn all interior lamps OFF after 10 minutes has passed since any switch activation has been detected by the BCM.

## Keyless Entry Interior Illumination

When the operator uses the keyless entry transmitter in order to unlock the doors, the BCM receives a door-unlock signal. The BCM must receive inputs from various systems that indicate that the ignition switch is OFF, the courtesy lamp switch is OFF, and all doors are closed before the BCM will activate the interior lamps. After all doors have been closed, the courtesy lamps will turn OFF immediately if the ignition switch is turned to the ON position, the door locks are LOCKED, or approximately 20 seconds after the last door closes. The BCM will turn off the courtesy lamps through the theater dimming feature. The BCM keeps the courtesy lamps on for 40 seconds after an alarm event is completed.

## Interior Lamps Dimming

The second group includes lamps which may be dimmed. This group may use a combination of light emitting diodes (LED), incandescent lamps, and pulse width modulation (PWM) illumination.

- Dome/reading lamps – front
- Dome/reading lamps – rear
- Door lock switch – driver
- Door lock switch – passenger
- Garage door opener switch
- Headlamp switch
- HVAC control head assembly
- Multifunction switch – instrument panel
- Outside rearview mirror switch
- Park brake switch
- Radio
- Roof beacon switch
- Seat memory switch – driver
- Sliding rear window switch
- Steering wheel control switch – left
- Steering wheel control switch – right
- Sun roof switch

- Sun roof tilt switch
- Transfer case shift control switch
- Trailer brake control switch
- Window switch – driver
- Window switch – passenger

With the headlamp switch in the PARK or HEAD position, the park lamp switch signal circuit provides an input to the body control module (BCM). The BCM responds by applying voltage to the park lamps as well as the backlight dimming control circuits illuminating all components with interior backlighting. All interior backlighting turns ON at the dimming level indicated by the instrument panel dimmer switch. The instrument panel dimmer switch is a momentary type switch and utilizes a resistor ladder to increase and decrease the brightness of the interior backlighting components. The instrument panel dimmer switch provides a voltage signal to the BCM that will increase as the brightness of the lights are increased and decrease as the brightness of the lights are decreased. The BCM provides a low reference signal and a B+ circuit to the instrument panel dimmer switch. When the instrument panel dimmer switch is held in the desired position, the dimmed voltage setting is applied from the instrument panel dimmer switch through the instrument panel dimmer switch signal circuit to the BCM. The BCM interprets the signal and applies a pulse width modulated voltage through the backlighting control circuits illuminating the interior backlighting to the requested level of brightness.

### Battery Rundown Protection/Inadvertent Power

The BCM inadvertent power supply voltage circuit provides battery voltage to all of the interior courtesy lamps. In the event that any of these lamps were to remain illuminated for a period of more than 10 minutes with the ignition switch in the OFF position, the BCM will deactivate the inadvertent power supply voltage circuit to prevent total battery discharge. If the ignition switch is turned to any position other than OFF, or if a lamp switch is activated during this 10 minute period, the timer resets for another 10 minutes.

# Body Systems

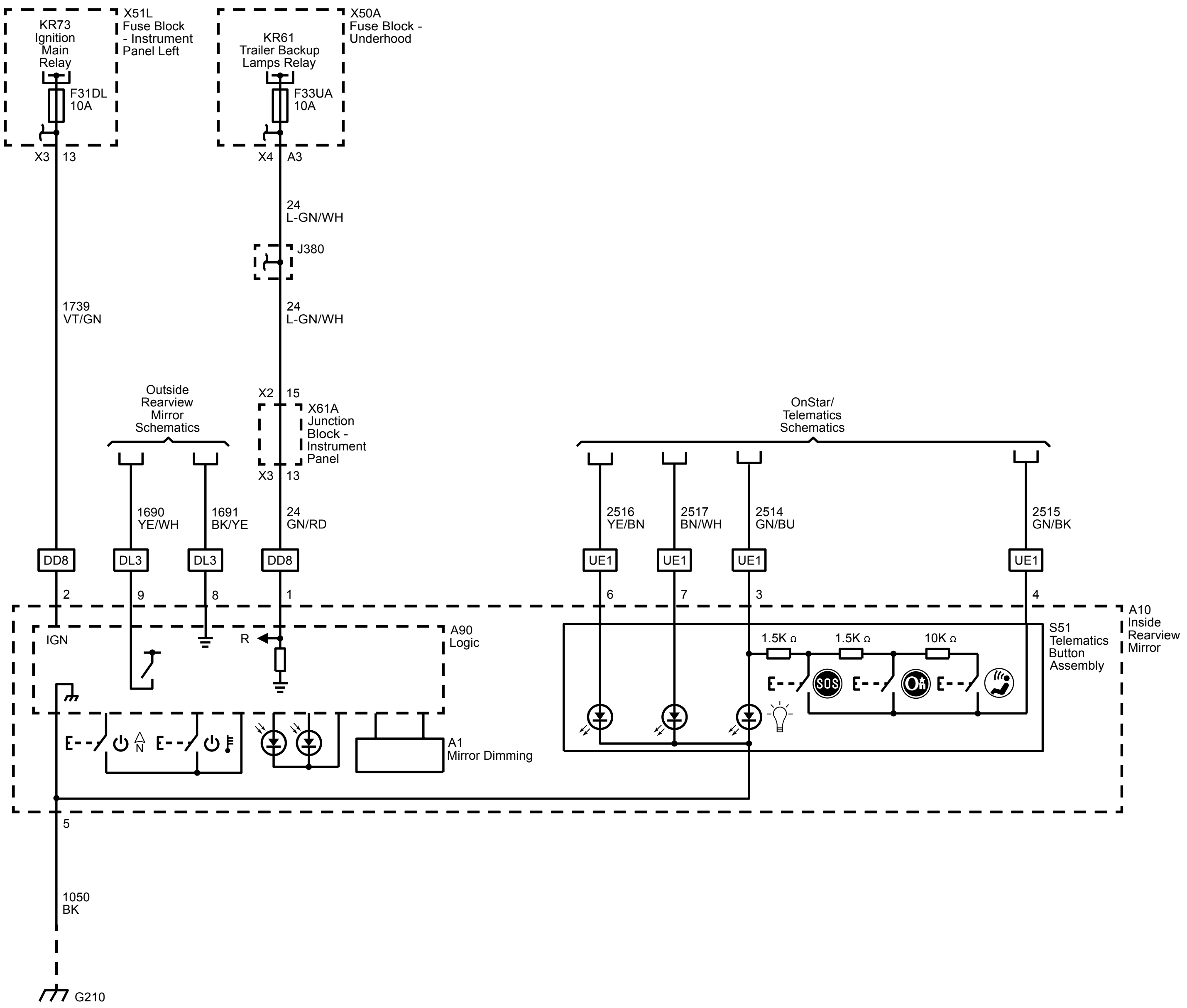
## Mirrors

### Schematic and Routing Diagrams

#### Inside Rearview Mirror Schematics

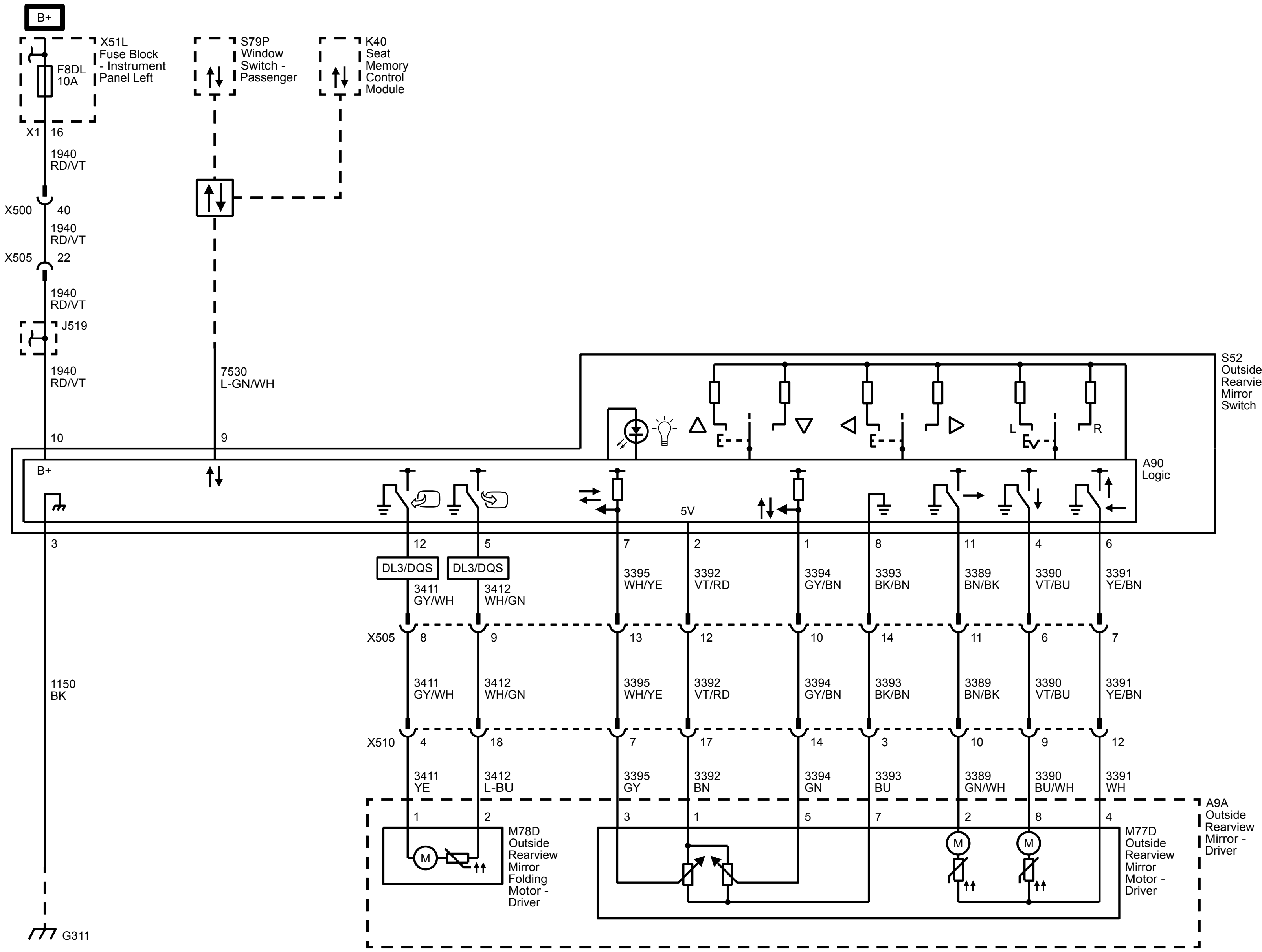
##### Inside Rearview Mirror

LOC
DESC

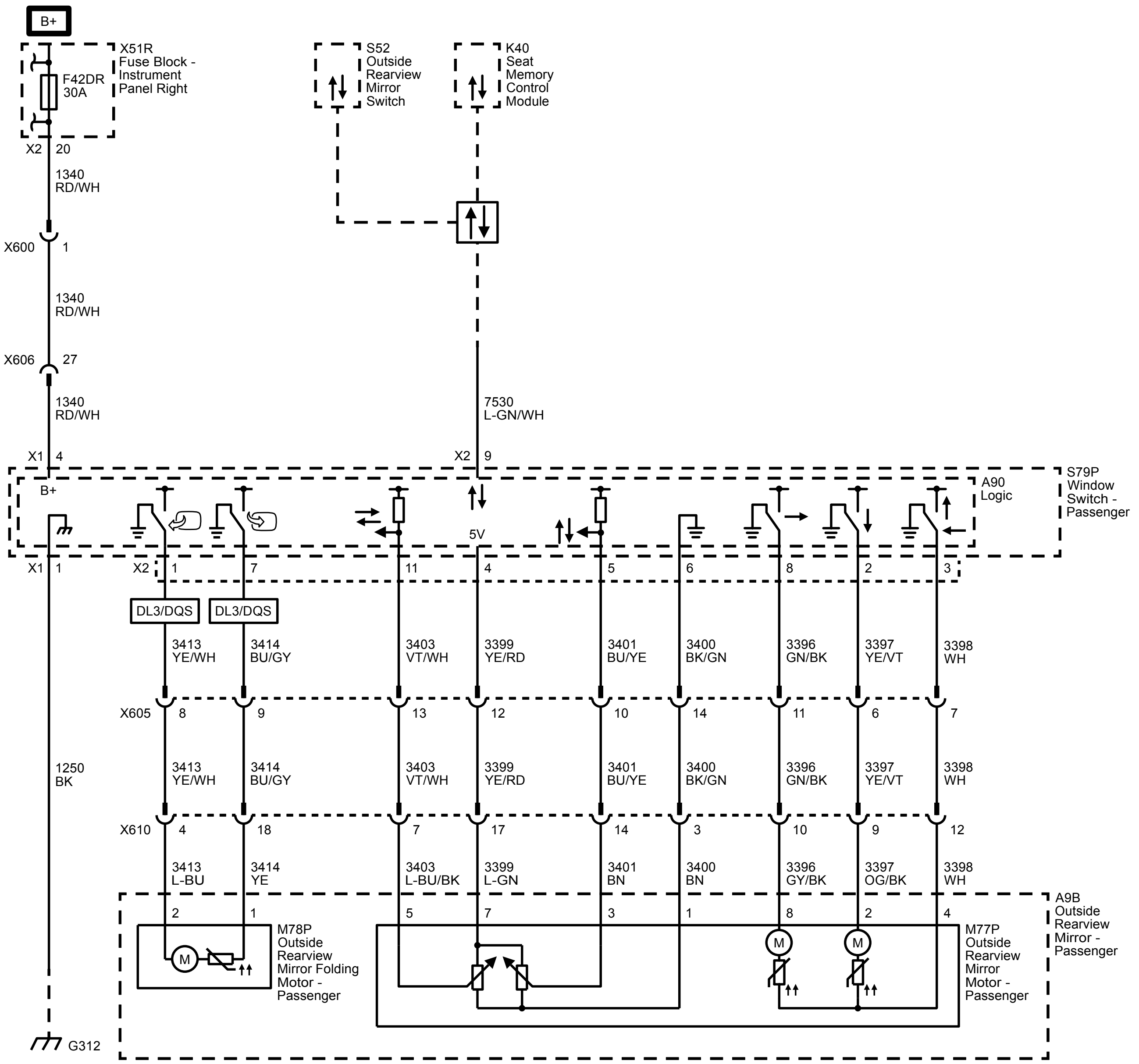

KR73
Ignition
Main
Relay
X51L
Fuse Block
- Instrument
Panel Left
F31DL
10A
X3
13
KR61
Trailer Backup
Lamps Relay
X50A
Fuse Block -
Underhood
F33UA
10A
X4
A3
24
L-GN/WH
J380
24
L-GN/WH
1739
VT/GN
Outside
Rearview
Mirror
Schematics
X2
15
X61A
Junction
Block -
Instrument
Panel
X3
13
OnStar/
Telematics
Schematics
1690
YE/WH
1691
BK/YE
24
GN/RD
2516
YE/BN
2517
BN/WH
2514
GN/BU
2515
GN/BK
DD8
DL3
DL3
DD8
UE1
UE1
UE1
UE1
2
9
8
1
6
7
3
4
A10
Inside
Rearview
Mirror
IGN
R
A90
Logic
S51
Telematics
Button
Assembly
1.5K Ω
1.5K Ω
10K Ω
SOS
A1
Mirror Dimming
N
5
1050
BK
G210

# Outside Rearview Mirror Schematics

## Controls and Driver (A45)

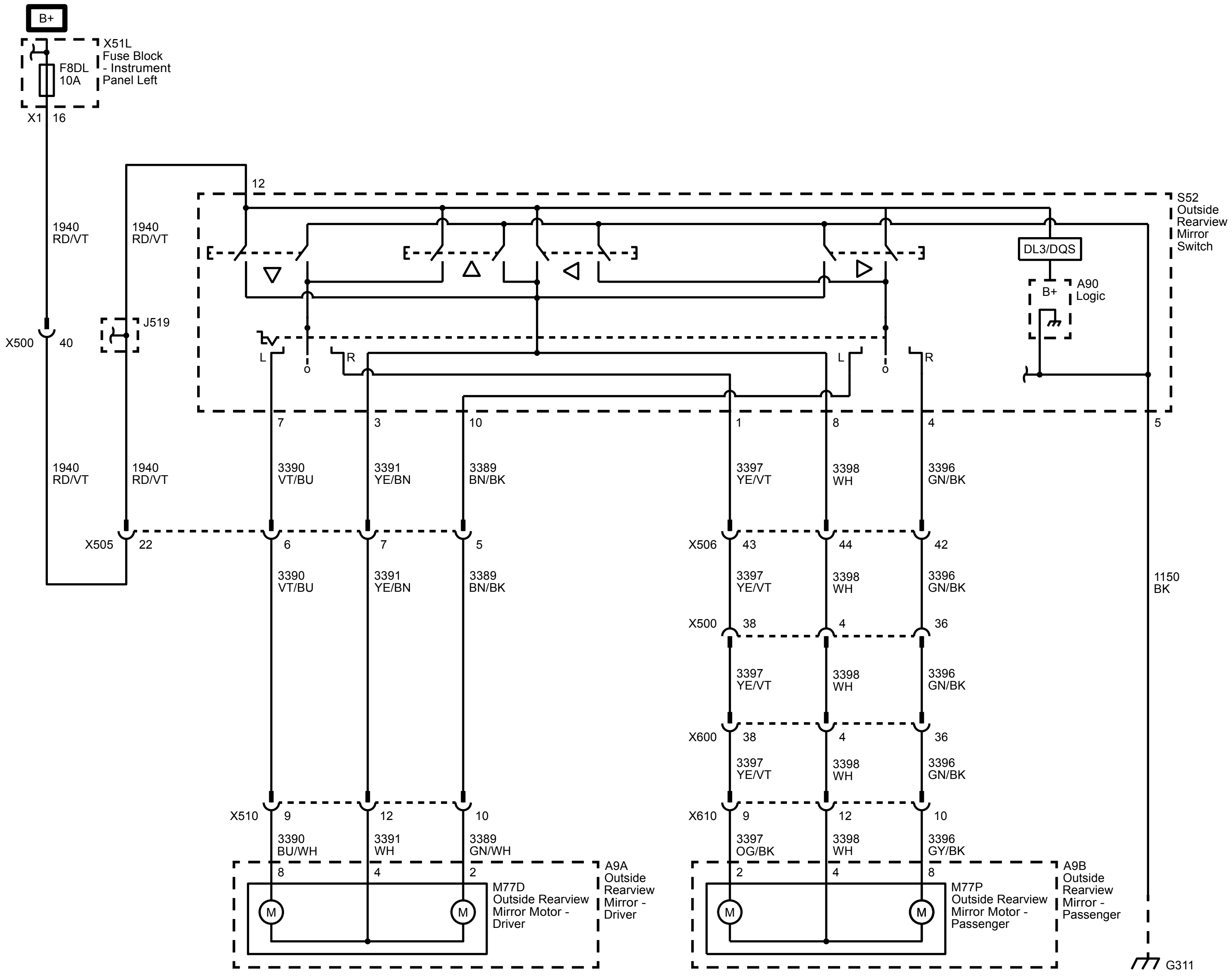

B+
X51L Fuse Block - Instrument Panel Left
F8DL 10A
X1 16
1940 RD/VT
X500 40
1940 RD/VT
X505 22
1940 RD/VT
J519
1940 RD/VT
S79P Window Switch - Passenger
K40 Seat Memory Control Module
7530 L-GN/WH
10
9
S52 Outside Rearview Mirror Switch
L
R
A90 Logic
B+
5V
3
12
5
7
2
1
8
11
4
6
DL3/DQS
DL3/DQS
3411 GY/WH
3412 WH/GN
3395 WH/YE
3392 VT/RD
3394 GY/BN
3393 BK/BN
3389 BN/BK
3390 VT/BU
3391 YE/BN
X505 8
9
13
12
10
14
11
6
7
1150 BK
3411 GY/WH
3412 WH/GN
3395 WH/YE
3392 VT/RD
3394 GY/BN
3393 BK/BN
3389 BN/BK
3390 VT/BU
3391 YE/BN
X510 4
18
7
17
14
3
10
9
12
3411 YE
3412 L-BU
3395 GY
3392 BN
3394 GN
3393 BU
3389 GN/WH
3390 BU/WH
3391 WH
1
2
3
1
5
7
2
8
4
A9A Outside Rearview Mirror - Driver
M78D Outside Rearview Mirror Folding Motor - Driver
M
M77D Outside Rearview Mirror Motor - Driver
M
M
G311

## Passenger (A45)

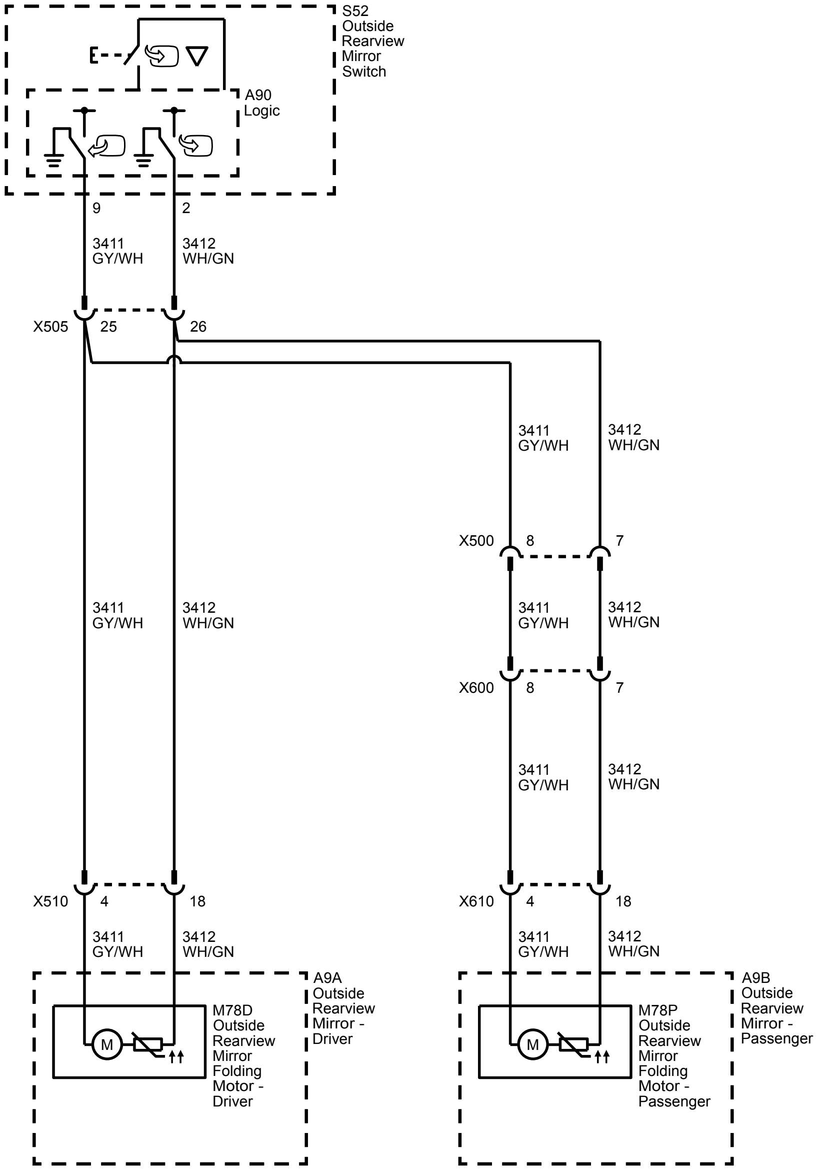

B+
X51R
Fuse Block -
Instrument
Panel Right
F42DR
30A
X2
20
1340
RD/WH
X600
1
1340
RD/WH
X606
27
1340
RD/WH
X1
4
S52
Outside
Rearview
Mirror
Switch
K40
Seat
Memory
Control
Module
7530
L-GN/WH
X2
9
B+
5V
A90
Logic
S79P
Window
Switch -
Passenger
X1
1
X2
1
7
11
4
5
6
8
2
3
DL3/DQS
DL3/DQS
3413
YE/WH
3414
BU/GY
3403
VT/WH
3399
YE/RD
3401
BU/YE
3400
BK/GN
3396
GN/BK
3397
YE/VT
3398
WH
X605
8
9
13
12
10
14
11
6
7
1250
BK
3413
YE/WH
3414
BU/GY
3403
VT/WH
3399
YE/RD
3401
BU/YE
3400
BK/GN
3396
GN/BK
3397
YE/VT
3398
WH
X610
4
18
7
17
14
3
10
9
12
3413
L-BU
3414
YE
3403
L-BU/BK
3399
L-GN
3401
BN
3400
BN
3396
GY/BK
3397
OG/BK
3398
WH
A9B
Outside
Rearview
Mirror -
Passenger
2
1
5
7
3
1
8
2
4
M
M78P
Outside
Rearview
Mirror Folding
Motor -
Passenger
M
M
M77P
Outside
Rearview
Mirror
Motor -
Passenger
G312

LOC
DESC

## Position (DL3, DL8, DPN or DQS) without (A45)


B+
X51L
Fuse Block
- Instrument
Panel Left
F8DL
10A
X1
16
1940
RD/VT
1940
RD/VT
12
S52
Outside
Rearview
Mirror
Switch
DL3/DQS
B+
A90
Logic
J519
X500
40
L
o
R
L
o
R
7
3
10
1
8
4
5
1940
RD/VT
1940
RD/VT
3390
VT/BU
3391
YE/BN
3389
BN/BK
3397
YE/VT
3398
WH
3396
GN/BK
X505
22
6
7
5
X506
43
44
42
3390
VT/BU
3391
YE/BN
3389
BN/BK
3397
YE/VT
3398
WH
3396
GN/BK
1150
BK
X500
38
4
36
3397
YE/VT
3398
WH
3396
GN/BK
X600
38
4
36
3397
YE/VT
3398
WH
3396
GN/BK
X510
9
12
10
X610
9
12
10
3390
BU/WH
3391
WH
3389
GN/WH
3397
OG/BK
3398
WH
3396
GY/BK
8
4
2
M
M
M77D
Outside Rearview
Mirror Motor -
Driver
A9A
Outside
Rearview
Mirror -
Driver
2
4
8
M
M
M77P
Outside Rearview
Mirror Motor -
Passenger
A9B
Outside
Rearview
Mirror -
Passenger
G311

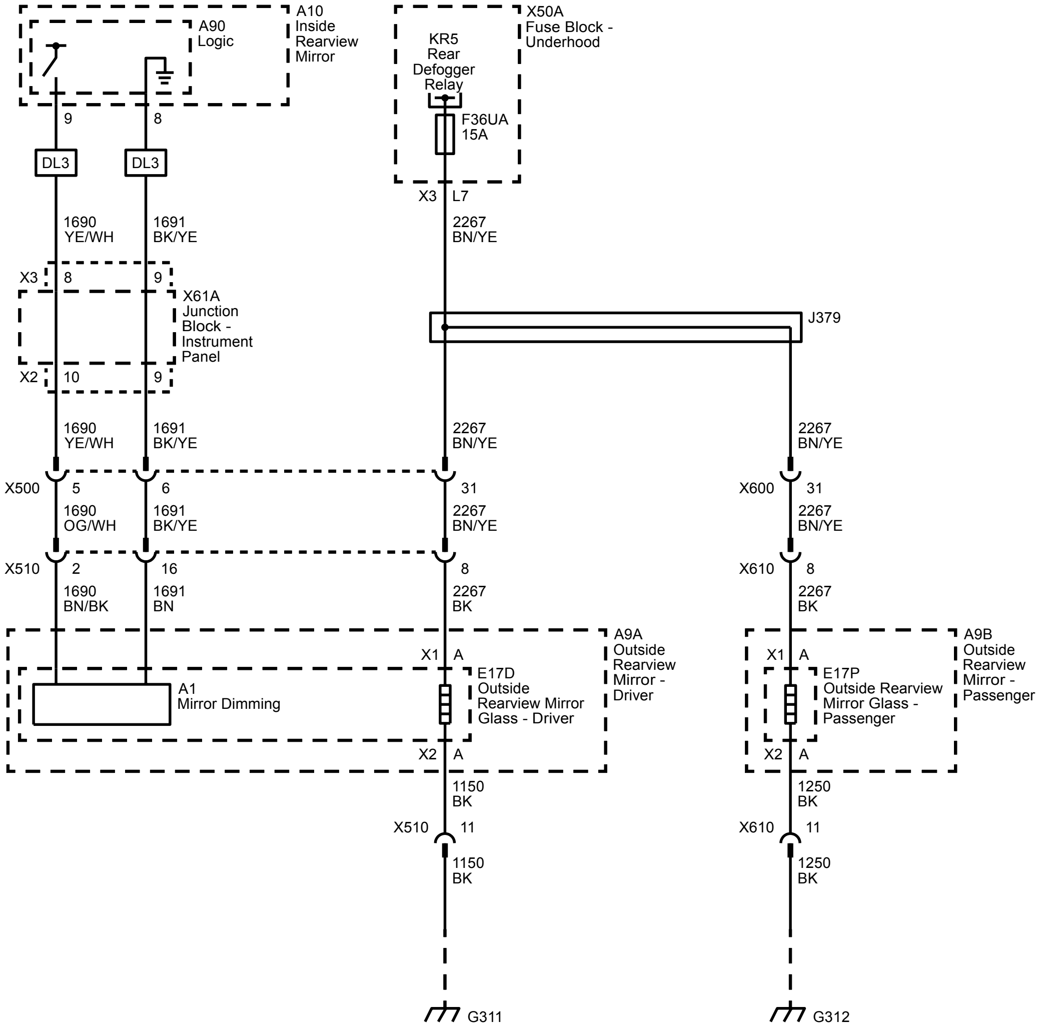
## Folding (DL3 or DQS) without (A45)


S52
Outside
Rearview
Mirror
Switch
A90
Logic
9
2
3411
GY/WH
3412
WH/GN
X505
25
26
3411
GY/WH
3412
WH/GN
X500
8
7
3411
GY/WH
3412
WH/GN
X600
8
7
3411
GY/WH
3412
WH/GN
3411
GY/WH
3412
WH/GN
X510
4
18
3411
GY/WH
3412
WH/GN
X610
4
18
3411
GY/WH
3412
WH/GN
A9A
Outside
Rearview
Mirror -
Driver
M
M78D
Outside
Rearview
Mirror
Folding
Motor -
Driver
A9B
Outside
Rearview
Mirror -
Passenger
M
M78P
Outside
Rearview
Mirror
Folding
Motor -
Passenger

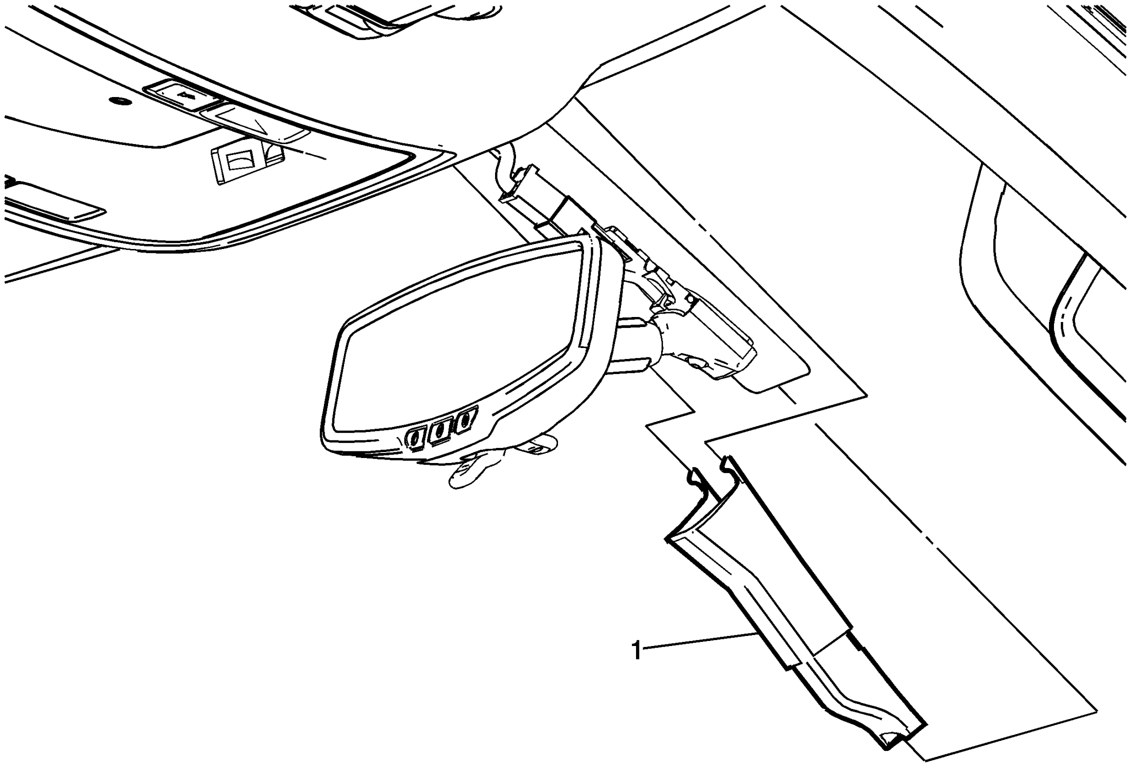
LOC
DESC

## Dimming (DL3) and Heating (DL8, DL3, DPN or DQS)

LOC
DESC


A10
Inside
Rearview
Mirror
A90
Logic
9
8
DL3
DL3
X50A
Fuse Block -
Underhood
KR5
Rear
Defogger
Relay
F36UA
15A
X3
L7
2267
BN/YE
1690
YE/WH
1691
BK/YE
X3
8
9
X61A
Junction
Block -
Instrument
Panel
X2
10
9
J379
1690
YE/WH
1691
BK/YE
2267
BN/YE
2267
BN/YE
X500
5
6
31
X600
31
1690
OG/WH
1691
BK/YE
2267
BN/YE
2267
BN/YE
X510
2
16
8
X610
8
1690
BN/BK
1691
BN
2267
BK
2267
BK
A9A
Outside
Rearview
Mirror -
Driver
X1
A
A1
Mirror Dimming
E17D
Outside
Rearview Mirror
Glass - Driver
X2
A
A9B
Outside
Rearview
Mirror -
Passenger
X1
A
E17P
Outside Rearview
Mirror Glass -
Passenger
X2
A
1150
BK
1250
BK
X510
11
X610
11
1150
BK
1250
BK
G311
G312

## Inside Rearview Mirror Wiring Harness Cover Replacement



### *Inside Rearview Mirror Wiring Harness Cover Replacement*

| Callout | Component Name |
|---|---|
| 1 | Inside Rearview Mirror Wiring Harness Cover<br>**Procedure**<br>Slide the bottom cover up into the top cover and gentle pull down and out from window. |

# Description and Operation

## Automatic Day-Night Mirror Description and Operation

### Inside Rearview Mirror with the Automatic Day-Night Feature System Operation

The inside rearview mirror uses 2 photocell sensors. One sensor is the headlight sensor, located on the face side of the mirror. The headlight sensor is used to determine light conditions present at the mirror face. The other sensor is the ambient light sensor, located on the rear of the mirror or windshield side. The ambient light sensor is used to determine the exterior light conditions. With a low exterior light condition detected, and a high light condition from behind the car, at the headlight sensor, the inside rearview mirror will automatically darken the face of the mirror.

In the daytime, the mirror is in a normal state because of the high exterior light condition that is indicated by the ambient light sensor. With the gear selector lever in the REVERSE position and the engine running, backup lamp supply voltage is supplied as an input to the inside rearview mirror. The mirror monitors this input to disable the automatic day-night feature. This allows the driver to see objects in the mirror clearly when backing up, even during the night.

### Driver Outside Rearview Mirror with Automatic Day-Night System Operation (If Equipped)

The automatic day-night feature of the driver outside rearview mirror is controlled by the inside rearview mirror. The inside rearview mirror supplies control and low reference to the driver outside rearview mirror. At night, with the automatic day-night feature enabled, the driver outside rearview mirror will automatically darken with the inside rearview mirror to reduce glare from headlamps behind the vehicle.

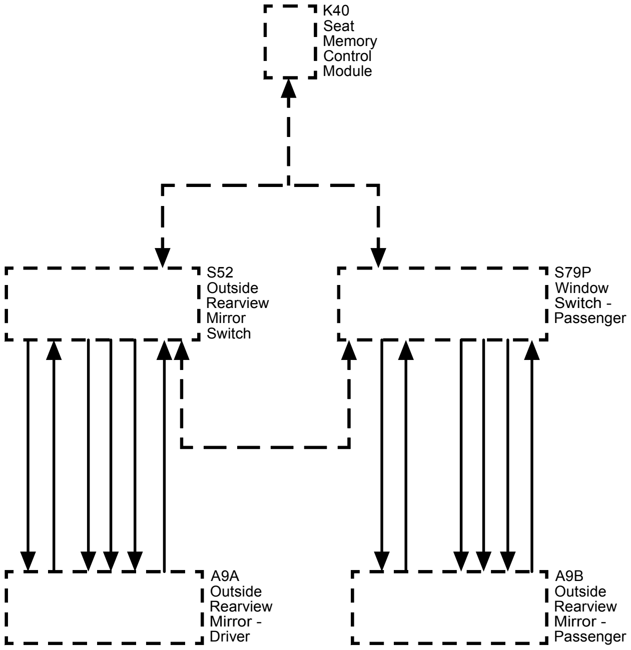
## Outside Mirror Description and Operation (With A45)

### Power Mirror System Components

The power mirror system consists of the following components:

- Memory Seat Control Module
- Outside Rearview Mirror Switch
- Passenger Window Switch
- Driver Outside Rearview Mirror
- Passenger Outside Rearview Mirror

### Power Mirrors with A45 Block Diagram



### Power Mirror System Controls

The outside mirror switch and passenger window switch are on a serial data circuit with the memory seat control module as the master. The mirror select and directional control switches are inputs to the memory seat module through the serial data circuit. When the memory seat module receives switch inputs from the outside mirror switch, mirror output commands are sent to the appropriate switch through the serial data circuit. The outside mirror switch and passenger window switch control the left and right outside rear view mirrors through bi-directional motor control circuits. The motor control circuits are floating while in an inactive state and the switches will apply power and ground to the control circuits as necessary to move the mirror in the commanded direction.

Mirror position is determined by both horizontal and vertical position sensors in each of the power mirrors. The outside mirror switch and passenger window switch supply a 5 V reference, low reference, and horizontal and vertical position signal circuits to these sensors. The signal circuits are referenced from 5 V by the switches and the signal circuit voltage levels represent the mirror positions. The mirror positions are sent to the memory seat module through the serial data circuit where they are stored for memory mirror operation. When the memory seat module receives a memory recall command, the memory seat module will send the go to position commands to the outside mirror switch and passenger window switch. The switches will then drive the appropriate mirror motors to the commanded position sensor settings.

### Heated Mirrors

The heated mirrors are controlled through the rear defog relay. Whenever the rear window defogger is turned on battery voltage is supplied to the mirror heater elements through the left and right mirror heater element control circuits.

## Outside Mirror Description and Operation (Without A45)

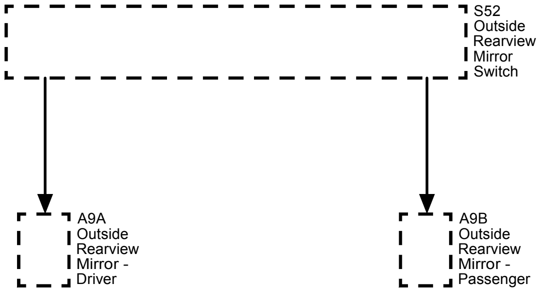
### Power Mirror System Components

The power mirror system consists of the following components:

- Mirror direction switch — Controls the left, right, up and down movements of the mirrors
- Mirror select switch — Allows the operator to select the mirror to be moved
- Left outside mirror — Contains both the horizontal and vertical mirror motors
- Right outside mirror — Contains both the horizontal and vertical mirror motors

Each of the outside power mirrors contains 2 motors. The up-down motor operates the vertical directions and the left-right motor operates the horizontal directions. Each of the power mirror motors are internally circuit breaker protected.

### Power Mirrors Without A45 Block Diagram



### Power Mirror System Controls

The outside mirror switch incorporates a mirror select switch and a 4 position mirror direction switch.

The mirror select switch allows the driver to select the mirror to be moved by turning the switch to L position enabling the left outside mirror or turning the switch to R position enabling the right outside mirror.

The mirror direction switch is a 4 position switch that allows the operator to move the selected mirror up, down, left or right.

### Power Mirror System Operation

The outside mirror switch receives power through the battery positive voltage circuit from the underhood fuse block. The outside mirror switch also receives a constant ground.

The 4 positions of the direction switch have multiple switch contacts. When not in use, the directional contacts are isolated from any circuit. Each of the contacts are connected to opposing sides of the appropriate mirror motors through the selector switch. The selector switch interrupts or completes these circuits depending on the position of the selector switch, L or R.

If the mirror select switch is placed in the L position and the up switch is pressed, battery voltage will be supplied to the driver outside mirror vertical motor through the driver mirror motor up control circuit and return to the mirror switch through the driver mirror motor left/down control circuit, then to ground and the mirror will move up. If the down switch is pressed, the driver mirror motor left/down control circuit supplies battery voltage and the driver mirror motor up control circuit completes the path to the mirror switch, then to ground and the mirror will move down.

The remainder of the mirror functions operate in the same manner as described above. Placing the mirror control switch in opposing positions, left/right or up/down, will reverse the voltage polarity to the mirror motor, utilizing the same circuits and the mirror will move accordingly.

### Heated Mirrors

The heated mirrors are controlled through the rear defog relay. Whenever the rear window defogger is turned ON, battery voltage is supplied to the mirror heater elements through the left and right mirror heater element control circuits.

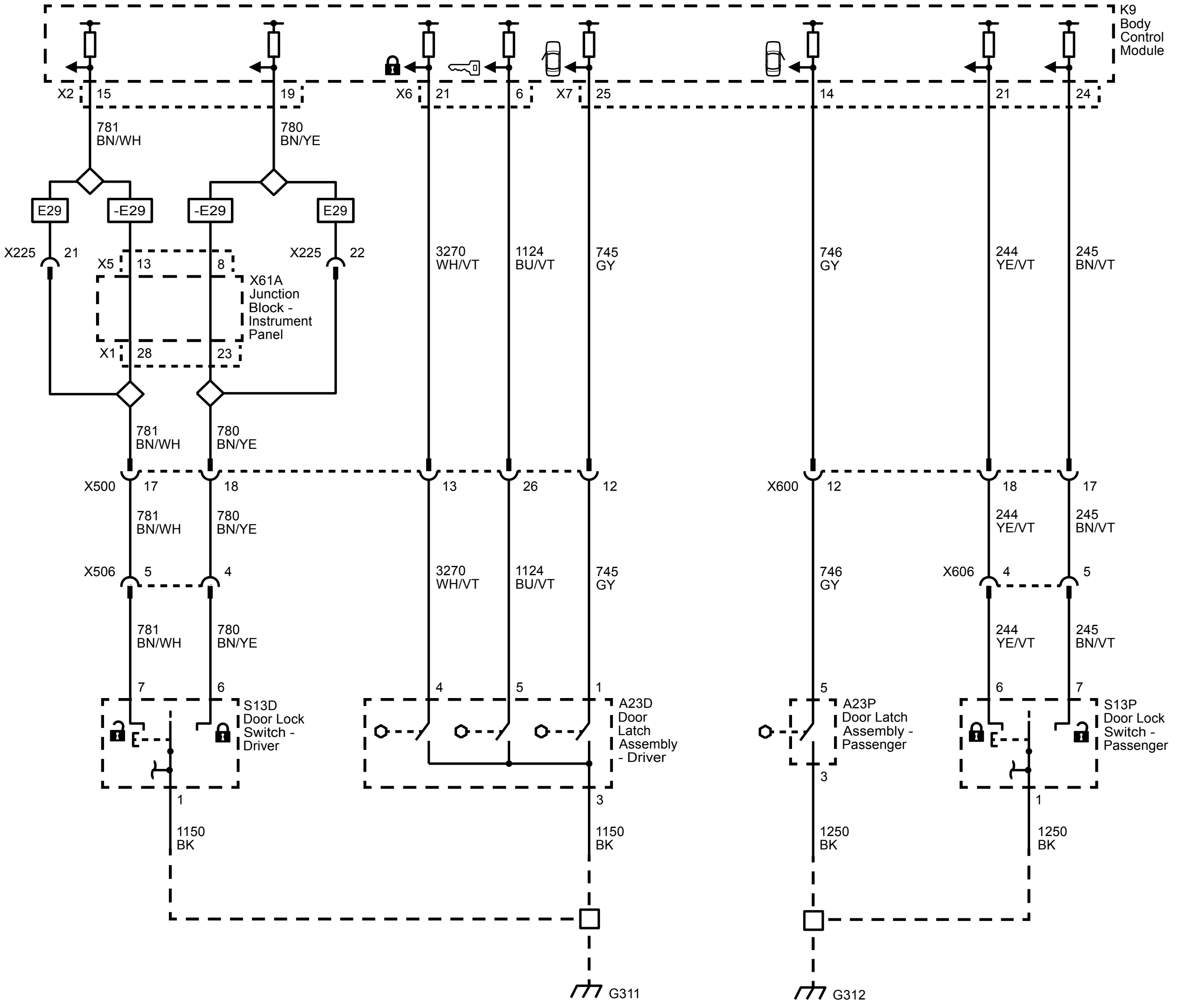
# Body Systems

## Vehicle Access

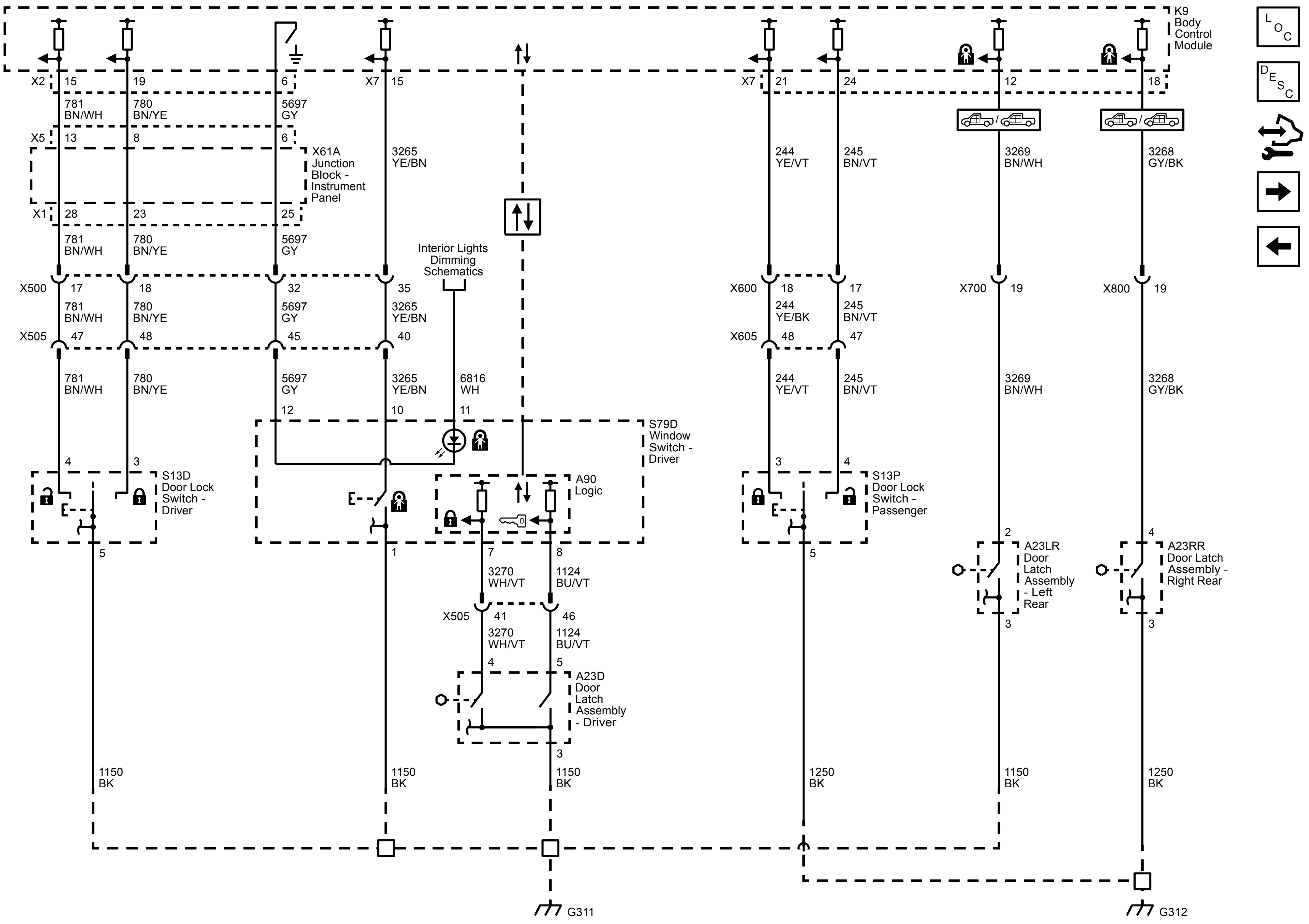
### Schematic and Routing Diagrams

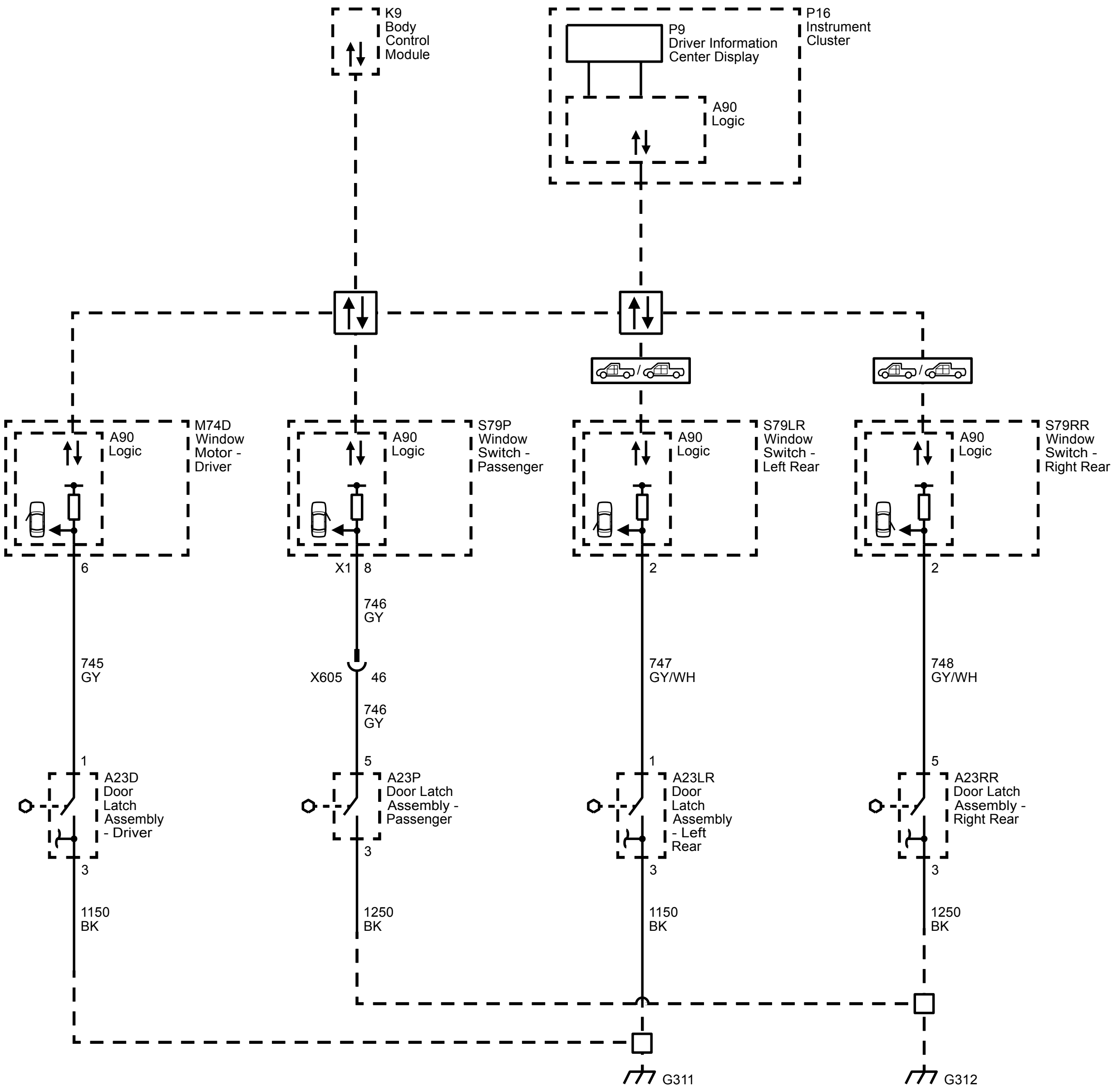
### Door Lock/Indicator Schematics

### Switches and Indicators (without A31)

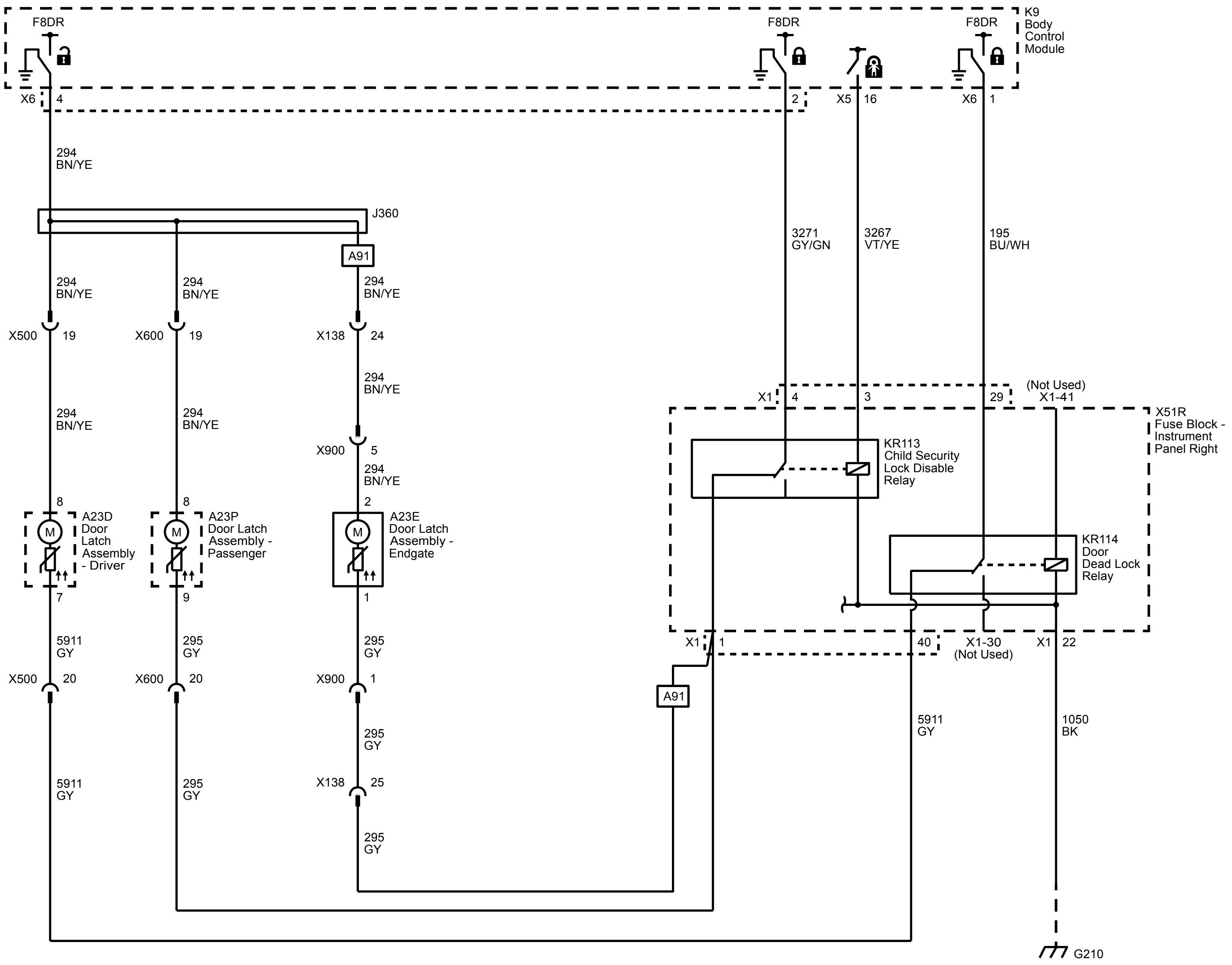

K9
Body
Control
Module
X2
15
19
X6
21
6
X7
25
14
21
24
781
BN/WH
780
BN/YE
E29
-E29
-E29
E29
X225
21
X225
22
X5
13
8
X61A
Junction
Block -
Instrument
Panel
X1
28
23
3270
WH/VT
1124
BU/VT
745
GY
746
GY
244
YE/VT
245
BN/VT
781
BN/WH
780
BN/YE
X500
17
18
13
26
12
X600
12
18
17
781
BN/WH
780
BN/YE
244
YE/VT
245
BN/VT
X506
5
4
3270
WH/VT
1124
BU/VT
745
GY
746
GY
X606
4
5
781
BN/WH
780
BN/YE
244
YE/VT
245
BN/VT
7
6
S13D
Door Lock
Switch -
Driver
4
5
1
A23D
Door
Latch
Assembly
- Driver
5
A23P
Door Latch
Assembly -
Passenger
6
7
S13P
Door Lock
Switch -
Passenger
1
3
3
1
1150
BK
1150
BK
1250
BK
1250
BK
G311
G312

## Switches and Child Lock Status (A31)


K9
Body
Control
Module
X2
15
19
6
X7
15
X7
21
24
12
18
781
BN/WH
780
BN/YE
5697
GY
X5
13
8
6
X61A
Junction
Block -
Instrument
Panel
3265
YE/BN
244
YE/VT
245
BN/VT
3269
BN/WH
3268
GY/BK
X1
28
23
25
781
BN/WH
780
BN/YE
5697
GY
Interior Lights
Dimming
Schematics
X500
17
18
32
35
781
BN/WH
780
BN/YE
5697
GY
3265
YE/BN
X505
47
48
45
40
781
BN/WH
780
BN/YE
5697
GY
3265
YE/BN
6816
WH
12
10
11
S79D
Window
Switch -
Driver
4
3
S13D
Door Lock
Switch -
Driver
5
A90
Logic
1
7
8
3270
WH/VT
1124
BU/VT
X505
41
46
3270
WH/VT
1124
BU/VT
4
5
A23D
Door
Latch
Assembly
- Driver
3
1150
BK
1150
BK
1150
BK
G311
X600
18
17
244
YE/BK
245
BN/VT
X605
48
47
244
YE/VT
245
BN/VT
3
4
S13P
Door Lock
Switch -
Passenger
5
1250
BK
X700
19
3269
BN/WH
2
A23LR
Door
Latch
Assembly
- Left
Rear
3
1150
BK
X800
19
3268
GY/BK
4
A23RR
Door Latch
Assembly -
Right Rear
3
1250
BK
G312
L
O
C
D
E
S
C

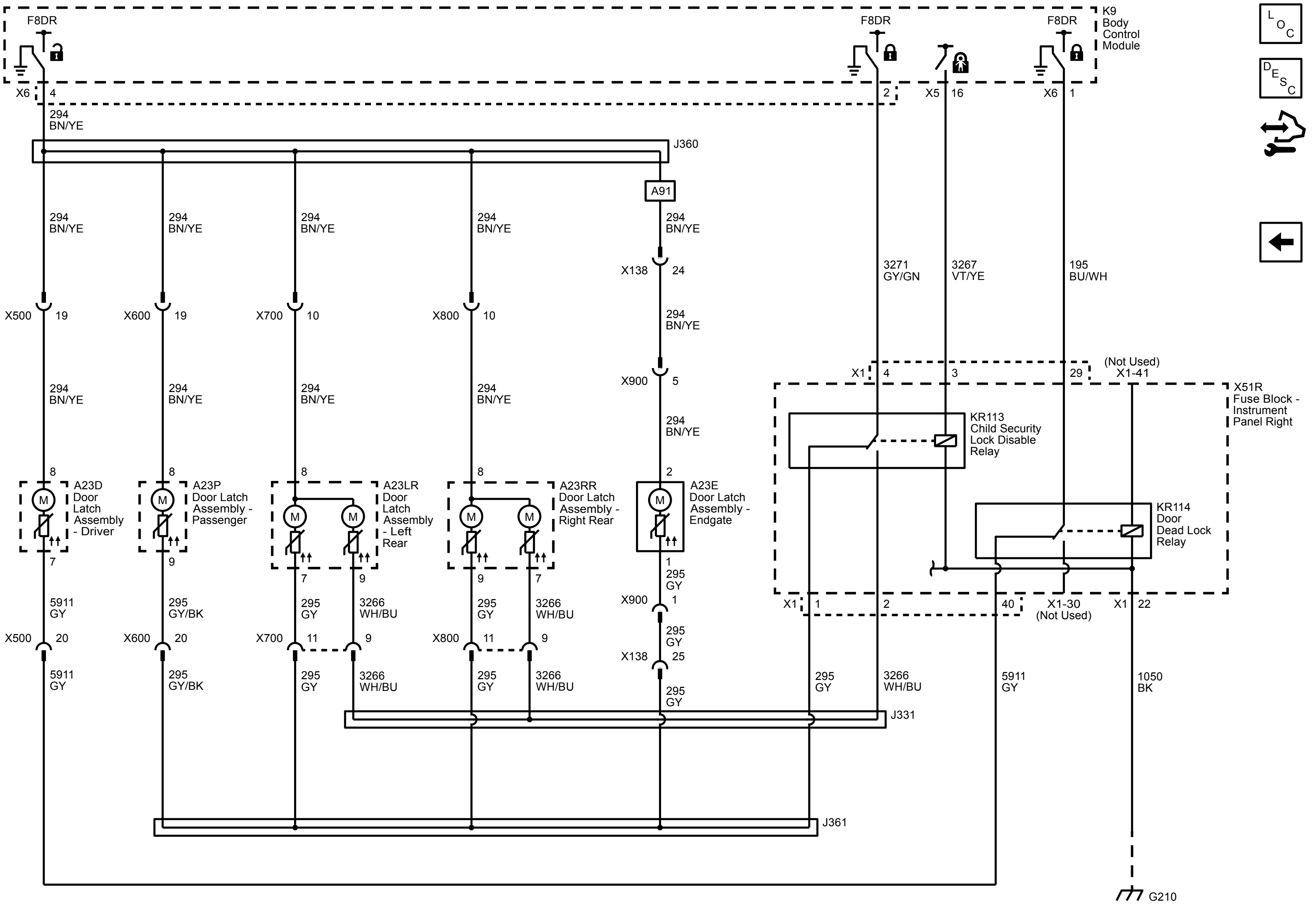

K9
Body
Control
Module
P16
Instrument
Cluster
P9
Driver Information
Center Display
A90
Logic
A90
Logic
M74D
Window
Motor -
Driver
A90
Logic
S79P
Window
Switch -
Passenger
A90
Logic
S79LR
Window
Switch -
Left Rear
A90
Logic
S79RR
Window
Switch -
Right Rear
6
X1
8
2
2
746
GY
745
GY
X605
46
746
GY
747
GY/WH
748
GY/WH
1
A23D
Door
Latch
Assembly
- Driver
5
A23P
Door Latch
Assembly -
Passenger
1
A23LR
Door
Latch
Assembly
- Left
Rear
5
A23RR
Door Latch
Assembly -
Right Rear
3
3
3
3
1150
BK
1250
BK
1150
BK
1250
BK
G311
G312

# Actuators (2 Door)



F8DR
F8DR
F8DR
K9 Body Control Module
X6 4
2
X5 16
X6 1
294 BN/YE
J360
A91
3271 GY/GN
3267 VT/YE
195 BU/WH
294 BN/YE
294 BN/YE
294 BN/YE
X500 19
X600 19
X138 24
294 BN/YE
(Not Used) X1-41
X1 4
3
29
X51R Fuse Block - Instrument Panel Right
294 BN/YE
294 BN/YE
X900 5
294 BN/YE
KR113 Child Security Lock Disable Relay
8
8
2
M
M
M
A23D Door Latch Assembly - Driver
A23P Door Latch Assembly - Passenger
A23E Door Latch Assembly - Endgate
KR114 Door Dead Lock Relay
7
9
1
5911 GY
295 GY
295 GY
X1 1
40
X1-30 (Not Used)
X1 22
X500 20
X600 20
X900 1
A91
5911 GY
1050 BK
295 GY
X138 25
5911 GY
295 GY
295 GY
G210

## Actuators (4 Door)


F8DR
F8DR
F8DR
K9
Body
Control
Module
X6 4
2
X5 16
X6 1
294
BN/YE
J360
A91
294
BN/YE
294
BN/YE
294
BN/YE
294
BN/YE
294
BN/YE
X138 24
3271
GY/GN
3267
VT/YE
195
BU/WH
X500 19
X600 19
X700 10
X800 10
294
BN/YE
X900 5
(Not Used)
X1-41
X1 4
3
29
X51R
Fuse Block -
Instrument
Panel Right
294
BN/YE
294
BN/YE
294
BN/YE
294
BN/YE
294
BN/YE
KR113
Child Security
Lock Disable
Relay
8
8
8
8
2
A23D
Door
Latch
Assembly
- Driver
A23P
Door Latch
Assembly -
Passenger
A23LR
Door
Latch
Assembly
- Left
Rear
A23RR
Door Latch
Assembly -
Right Rear
A23E
Door Latch
Assembly -
Endgate
M
KR114
Door
Dead Lock
Relay
7
9
7
9
9
7
1
295
GY
X900 1
5911
GY
295
GY/BK
295
GY
3266
WH/BU
295
GY
3266
WH/BU
X1 1
2
40
X1-30
(Not Used)
X1 22
295
GY
X500 20
X600 20
X700 11
9
X800 11
9
X138 25
5911
GY
295
GY/BK
295
GY
3266
WH/BU
295
GY
3266
WH/BU
295
GY
295
GY
3266
WH/BU
5911
GY
1050
BK
J331
J361
G210
L O C
D E S C

# Description and Operation

## Door Ajar Indicator Description and Operation

### Door Ajar Indicator System Components

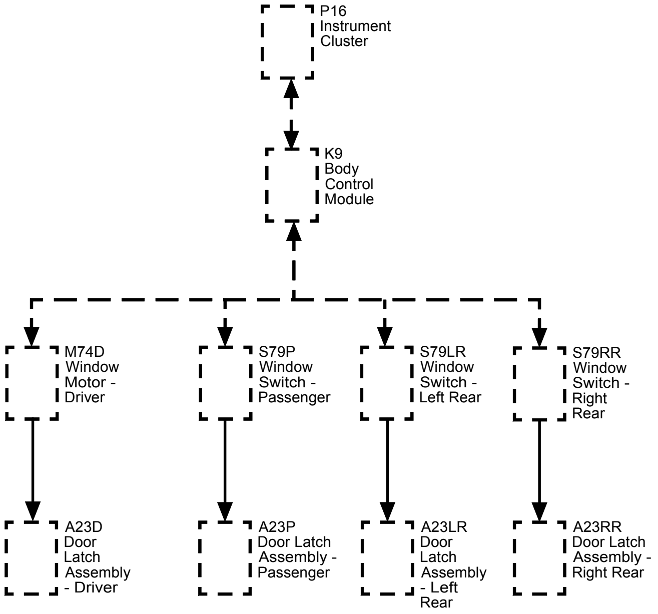
The door ajar indicator system consists of the following components:

- Body control module
- Instrument cluster
- Driver door latch
- Passenger door latch
- Left rear door latch
- Right rear door latch
- Driver window motor (AXG)
- Passenger window switch (AED)
- Left rear window switch ( AEQ)
- Right rear window switch (AEQ)

### Door Ajar System

Depending upon if the vehicle is a standard cab, extended cab or crew cab and/or is equipped with express up/down power windows or standard express down power windows or manual crank windows affects how the driver and passenger door ajar signal circuits are configured and monitored.

### Door Ajar Indicator With AXG/AED/AEQ Block Diagram


P16
Instrument
Cluster
K9
Body
Control
Module
M74D
Window
Motor -
Driver
S79P
Window
Switch -
Passenger
S79LR
Window
Switch -
Left Rear
S79RR
Window
Switch -
Right
Rear
A23D
Door
Latch
Assembly
- Driver
A23P
Door Latch
Assembly -
Passenger
A23LR
Door
Latch
Assembly
- Left
Rear
A23RR
Door Latch
Assembly -
Right Rear

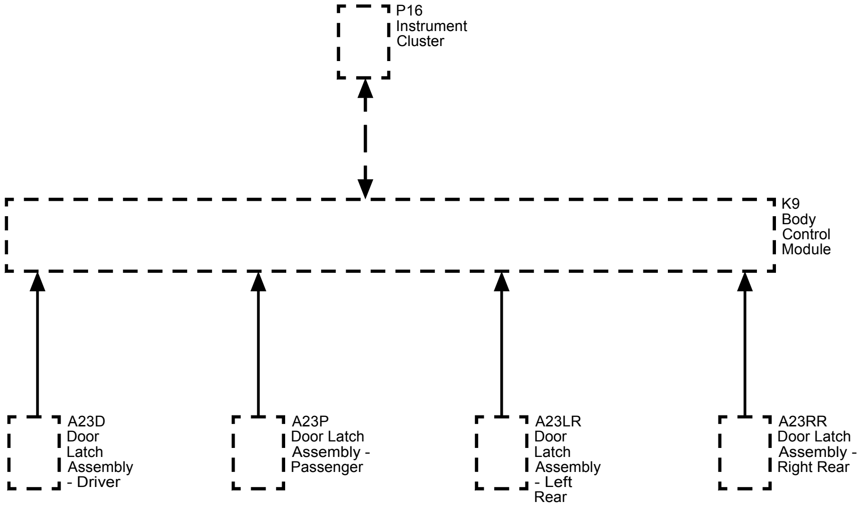
### Driver Door Ajar (With AXG)

The driver window motor will provide a 12V signal to the driver door ajar switch within the door latch to indicate the status of the door. When the driver door is open, the contract within the ajar switch closes providing a ground part for the signal circuit. The driver window motor will detect the voltage drop in the ajar signal circuit and will send a serial data message to the body control module. The body control module will then send a message to the instrument cluster which will illuminate the door ajar icon.

### Passenger and Rear Doors Ajar (With AED and AEQ)

The passenger and rear window switches provide a 12V signal to the respective door ajar switch within the door latch to indicate the status of the door. When the door is open, the contract within the ajar switch closes providing a ground part for the signal circuit. The window switch will detect the voltage drop in the ajar signal circuit and will send a serial data message to the body control module. The body control module will then send a message to the instrument cluster which will illuminate the door ajar icon.

## Door Ajar Indicator Block Diagram


P16 Instrument Cluster
K9 Body Control Module
A23D Door Latch Assembly - Driver
A23P Door Latch Assembly - Passenger
A23LR Door Latch Assembly - Left Rear
A23RR Door Latch Assembly - Right Rear

## Driver, Passenger and Rear Doors Ajar (Without AXG, AED or AEQ)

The body control module provides a 12V signal to each door ajar switch within the door latch to indicate the status of the door. When the door is open, the contract within the ajar switch closes providing a ground part for the signal circuit. The body control module will detect the voltage drop in the ajar signal circuit and will send a message to the instrument cluster which will illuminate the door ajar icon

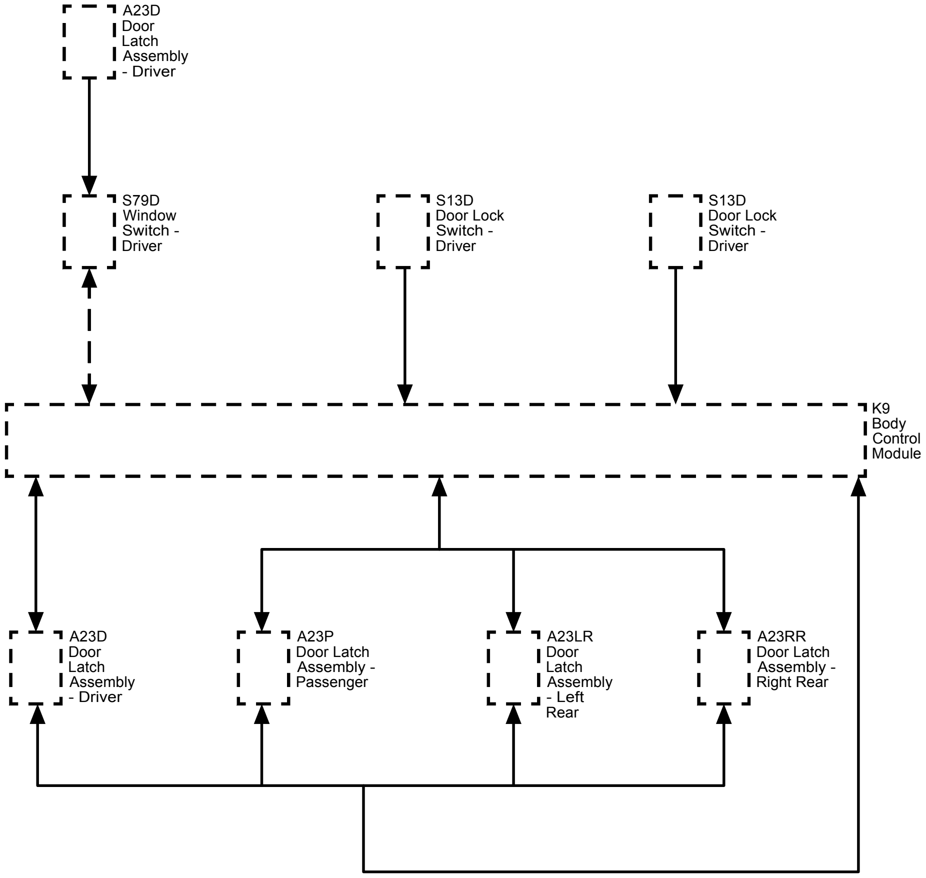
## Power Door Locks Description and Operation

### Door Lock System Components

The power door lock system consists of the following components:

- Driver door lock switch
- Child door lockout switch (Part of the driver window switch)
- Passenger door lock switch
- Front door lock actuators
- Rear door lock actuators (Extended and crew cab models)
- Body control module (BCM)
- Keyless entry control module
- Keyless entry transmitter
- Right instrument panel fuse block (Contains child security lock disable PCB relay)

## Power Door Locks Block Diagram


A23D Door Latch Assembly - Driver
S79D Window Switch - Driver
S13D Door Lock Switch - Driver
S13D Door Lock Switch - Driver
K9 Body Control Module
A23D Door Latch Assembly - Driver
A23P Door Latch Assembly - Passenger
A23LR Door Latch Assembly - Left Rear
A23RR Door Latch Assembly - Right Rear

### Door Lock System Controls

The power door lock system can be controlled by any of the following:

- A door lock switch LOCK or UNLOCK activation

- A keyless entry transmitter activation

### Door Lock Operation

The BCM supplies a 12 volt signal to the lock and unlock signal circuits of the driver and passenger door lock switches. When the appropriate switch is pressed, a contact within the door lock switch closes providing a ground path for the signal circuit. The BCM will detect the voltage drop in the signal and will command the doors to perform the lock or unlock functions.

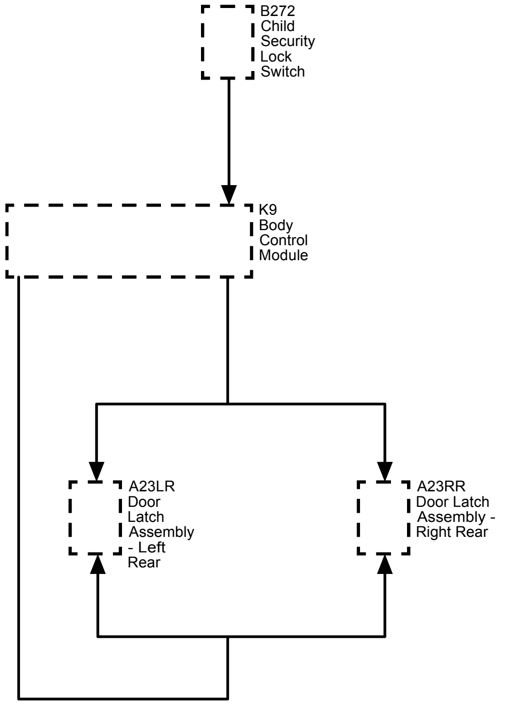
The BCM may also receive a LOCK or UNLOCK command from the keyless entry control module, refer to Keyless Entry System Description and Operation for information on the keyless entry system

The BCM, upon receipt of a lock switch lock or unlock signal, will supply voltage to the door lock actuator lock or unlock control circuits. Since the opposite side of the lock actuator is connected to ground through the other lock actuator control circuit, the doors will then lock or unlock as commanded.

The following three circuits are used to operate the lock:

- Driver door unlock
- Passenger doors unlock
- All doors lock

## Power Door Child Lock Block Diagram


B272 Child Security Lock Switch
K9 Body Control Module
A23LR Door Latch Assembly - Left Rear
A23RR Door Latch Assembly - Right Rear

### Child Security Lockout System Operation

The child door lockout switch on the driver window switch controls the child locks on the rear doors. The lockout switch is an input to the body control module and the body control module controls the door lock security relay. When the body control module receives a command from the child door lockout switch, it will apply voltage to the child security lock disable relay coil, this will energize the relay and the contact within the relay will then direct the voltage to activate the left rear and right rear child locks and then isolate them from the normal door lock system to prevent the rear doors from being opened by using the interior rear door handles. An indicator will also illuminate to alert the driver that the child lockout system has been activated. Pushing the switch again will return normal function to the rear interior door handles and the indicator will go out.

The body control module monitors the voltage level of the child security motor status signal circuit, when the child locks have been activated, the contacts of the child security motor status switch (internal to the rear door latch) will close providing a ground path for the signal circuit pulling the voltage low. It is in this manner that the body control module is able to determine if the rear door latch has been successfully been locked out.

The body control module monitors the status of the child security lockout system, when the body control module detects a fault in the system, it will command the child lockout indicator to flash ON and OFF for 30 seconds to alert the driver that the child security lockout system may not be functioning properly.

The body control module will command the child lockout indicator to flash ON and OFF for the following reasons:

- An open/high resistance in either child security motor status signal circuit
- The body control module detects that one or both rear door latches have not activated and are not locked out
- The body control module detects a short to ground or an open/high resistance in the child security lock disable relay control circuit
- A malfunctioning child security lock disable relay

- An open/high resistance in the child security lock motor control circuit

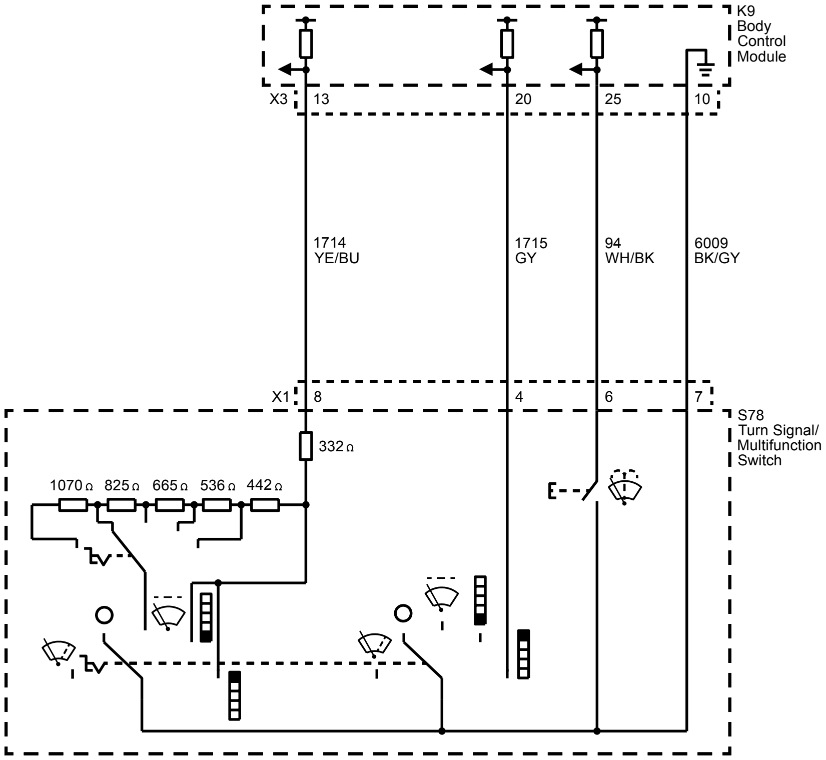
# Body Systems

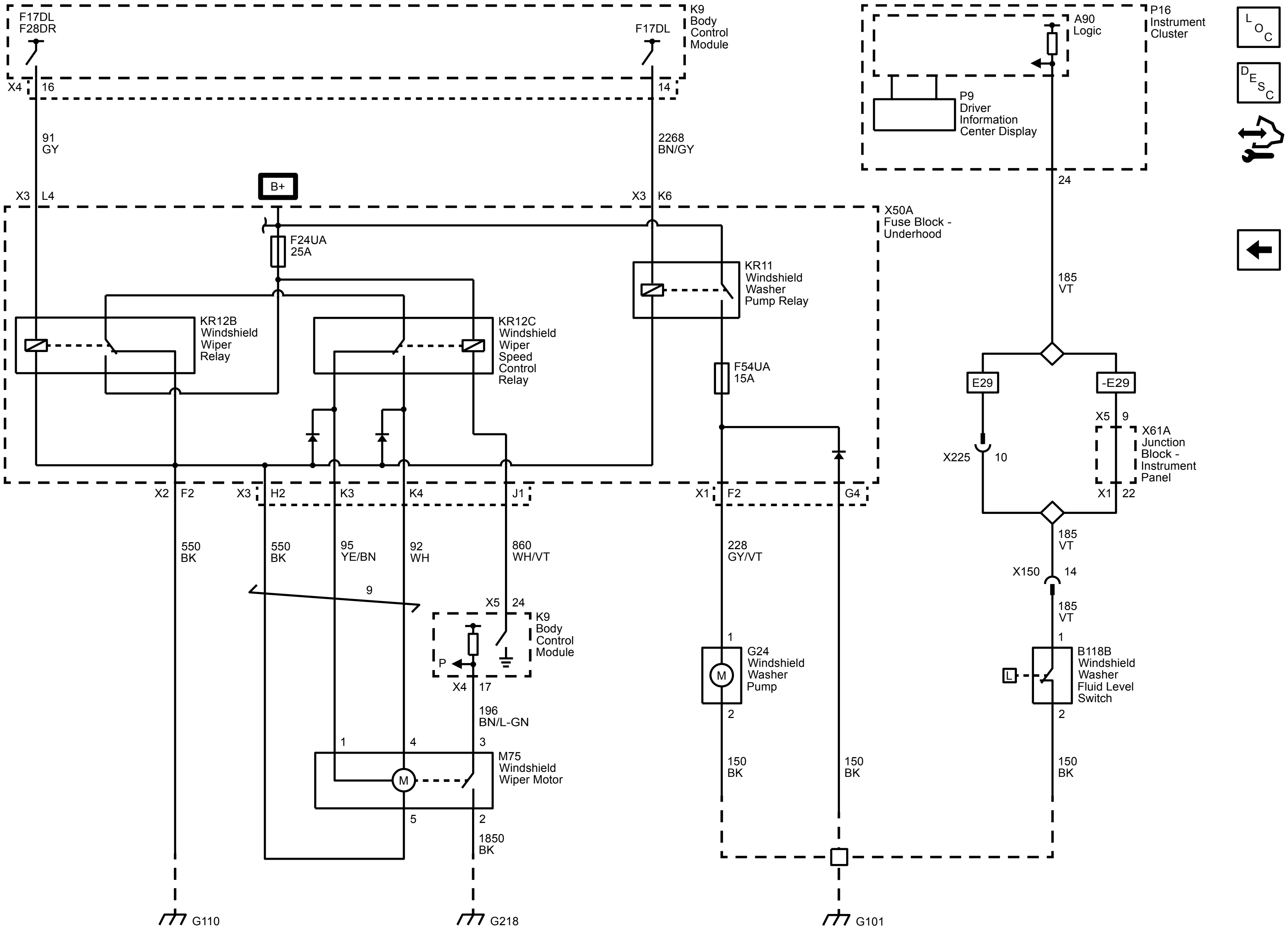
## Wipers and Washers

### Schematic and Routing Diagrams

### Wiper/Washer Schematics

### Controls


K9
Body
Control
Module
X3
13
20
25
10
1714
YE/BU
1715
GY
94
WH/BK
6009
BK/GY
X1
8
4
6
7
S78
Turn Signal/
Multifunction
Switch
332 Ω
1070 Ω
825 Ω
665 Ω
536 Ω
442 Ω


F17DL
F28DR
K9
Body
Control
Module
F17DL
X4
16
14
91
GY
2268
BN/GY
B+
X3
L4
X3
K6
X50A
Fuse Block -
Underhood
F24UA
25A
KR11
Windshield
Washer
Pump Relay
KR12B
Windshield
Wiper
Relay
KR12C
Windshield
Wiper
Speed
Control
Relay
F54UA
15A
X2
F2
X3
H2
K3
K4
J1
X1
F2
G4
550
BK
550
BK
95
YE/BN
92
WH
860
WH/VT
228
GY/VT
9
X5
24
K9
Body
Control
Module
P
X4
17
196
BN/L-GN
1
4
3
M75
Windshield
Wiper Motor
M
5
2
1850
BK
1
G24
Windshield
Washer
Pump
M
2
150
BK
150
BK
G110
G218
G101
P16
Instrument
Cluster
A90
Logic
P9
Driver
Information
Center Display
24
185
VT
E29
-E29
X5
9
X61A
Junction
Block -
Instrument
Panel
X225
10
X1
22
185
VT
X150
14
185
VT
1
B118B
Windshield
Washer
Fluid Level
Switch
L
2
150
BK
LOC
DESC

# Description and Operation

## Wiper/Washer System Description and Operation

### Wiper/Washer System Components

The wiper/washer system consists of the following electrical components:

- Windshield Wiper Relay
- Windshield Wiper Speed Control Relay
- Windshield Washer Pump Relay
- Windshield Washer Fluid Pump
- Windshield Wiper Motor
- Window Wiper/Washer Switch
- Windshield Wiper Motor Fuse
- Windshield Washer Fluid Pump Fuse
- Body Control Module

### Windshield Wiper System

The body control module (BCM) determines the front wipe/wash system mode of operation by monitoring several signals from the front wipe/wash switch as indicated in the wiper switch.

The front wipe/wash switch receives a reference ground signal from the BCM. Each input of the BCM provides a switched battery pull-up for each front wiper/washer switch output signal it receives. All the BCM inputs are recognized as active when the wiper switch provides a path to the referenced ground signal. The first signal received by the BCM is the result of 6 resistors in the front wiper switch configured as a resistor ladder network. This signal is connected to a BCM analog to digital input. Depending on the function selected (High, Low, Intermittent 1 thru 5, Mist, Off), the front wiper control switch connects a different set of resistors into the circuit resulting in different voltages appearing on the BCM A/D input. By monitoring this voltage, the BCM determines how to control the wiper motor On/Off Relay. It should be noted that High, Low, and Mist all have the same value on this signal circuit. The second signal received from the front wiper switch is active only when the front wiper switch is in the high speed wiper position. When the wiper switch is not in the high speed position, the switch is open and the signal circuit is pulled to battery by the BCM. When the wiper switch is in the high speed position, the switch pulls the circuit low. The BCM determines how to control the Wiper high/low speed relay from this input. The third signal received from the front wiper switch is from the momentary windshield wash control switch. When the washer switch is not active the switch is open and the signal circuit is pulled to battery by the BCM. When the washer switch is active, the switch pulls the circuit low. The BCM controls the windshield wash and windshield wash activated wiper operation based on this input.

The BCM controls front wiper motor operation through two output signals and the monitoring of one input signal. The two outputs (one high side drive, one low side drive) are used to control two external wiper motor relays: front wiper motor on/off relay: which provides the wiper motor with battery power when it is activated by the high side drive signal (switched battery) from the BCM. When left deactivated, the normally closed contacts provide a ground to the wiper motor. Wiper high/low speed relay: when activated by a low side drive signal (ground) from the BCM, it switches the power supplied by the wiper motors on/off relay to the motors high speed input. When left deactivated, the normally closed contacts connect the power supplied by the wiper motors on/off relay to the motors low speed input. The input used by the BCM is from the park switch located in the wiper motor assembly. When the wiper blades are not in the park position, the wiper park switch is open and the circuit is pulled up to battery by the BCM. When the wiper blades are in the park position at the bottom of the glass, the wiper park switch closes to ground pulling the park signal circuit low.

To initiate low speed operation, the BCM only energizes the front wiper motor on/off relay. This allows battery voltage from the wiper fuse to be applied through the switched contacts of the wiper motor on/off relay, through the normally closed contacts of the wiper high/low speed relay, to the low speed control circuit of the windshield wiper motor.

Redundant high speed switch pass through. The BCM provides redundant circuitry which places battery power on its wiper motor on/off relay output with activation of its low assertion high speed wiper switch input. The BCM shall be capable of doing this, even if the module has lost all microprocessor control. This redundant circuit shall supply power while in the RUN and CRANK power modes. however; while in the CRANK power mode, the pass through shall only be active if the BCM is NOT in a computer operating properly state.

To initiate high speed operation, the BCM energizes both the front wiper motor on/off relay and the wiper high/low speed relay . This allows battery voltage from the wiper fuse to be applied through the switched contacts of the wiper motor on/off relay, through the switched contacts of the wiper high/low speed relay, to the high speed control circuit of the windshield wiper motor.

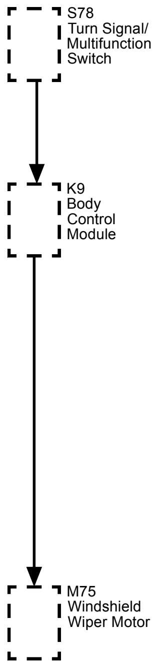
Parking the wiper motor. In order to perform an accurate read of the park switch and to ensure the wipers will come to rest while still in the park position, parking of the wipers only occurs while in a low speed wiper mode. This requires that if the wipers are performing a high speed wiper operation at the time they are required to park, the BCM shall transition the Wipers to low speed by deactivating the wiper high/low relay before attempting to park. In order to park the wipers, the BCM monitors the park circuit until the park switch pulls the park circuit to ground. At this time, the BCM will immediately deactivate the wiper motor on/off relay. The relay contacts will switch back to their normally closed position and will apply ground to the wiper motor power inputs through the normally closed contacts of the wiper high/low relay. This deactivates and dynamically brakes the wiper motor in the park position. When the wiper switch is turned to the OFF position while the wiper motor is somewhere in mid-cycle, the BCM will continue to operate the motor until the wipers reach the park position. If the BCM is running the wiper motor and does not see a state transition of the park switch after 8 s, the wipers will stop immediately when the wiper switch is turned to OFF. If the ignition is turned OFF while the wipers are in mid-cycle, the wipers will stop immediately, regardless of position. The BCM will park the wipers next time the ignition is turned ON.

The windshield wiper system MIST operation is identical to LOW speed operation, except that the MIST switch is a press and release type switch. When the wiper switch is moved to the MIST position and released, low speed wiper motor operation is started and will continue until 1 cycle is complete. If the wiper switch is moved to the MIST position and held, the wiper motor will operate in the LOW speed mode until the switch is released.

Windshield wiper intermittent operation is a low speed wiper motor function with a variable delay interval between the wiper motor cycles. The duration of the delay is controlled by the front wiper control switches intermittent 1 thru intermittent 5 settings. The wiper operation is as follows

1. The BCM will initiate a single wipe by activating its front wiper ON/OFF relay output.
2. At the completion of a single wipe, the BCM will park the wipers as described above.
3. The BCM will then pause the wipers in their park position for the time duration associated with intermittent delay switch setting.
4. When the delay time expires repeat Steps 1 and 3 until the system is turned off or taken out of intermittent mode. If the wiper switch is moved from a longer delay interval to a shorter delay interval, the BCM will command an immediate wipe cycle and reset the delay timer to the shorter delay interval.

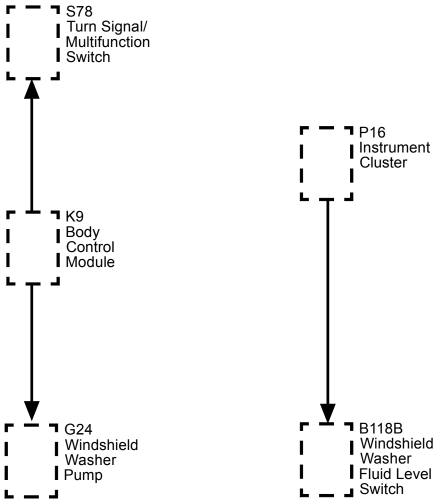
Intermittent wiper operation may be vehicle speed sensitive. When enabled, the speed compensated intermittent feature causes the intermittent wiper delay intervals to become shorter as a function of increased speed. As vehicle speed is reduced the intervals will become closer to the predetermined



### Windshield Washer System

The BCM controls the windshield wash operation and windshield wash activated wiper operation. When the BCM detects the activation of the momentary windshield wash control switch, it activates its washer pump relay drive output which supplies battery power to the coil of the washer pump relay. This energizes the relay, which switches battery power to the pump motor. The BCM will also activate continuous low speed windshield wipes as described above. Upon deactivation of the windshield wash control switch, the wiper control module (BCM) shall deactivate the wash motor and will also park the wiper motor as described above unless the drip wipe feature is enabled. On some vehicles the drip wipe feature will be enabled and cause the system to provide additional wiping of the windshield after the switch has been released and fluid is no longer being applied. The front wash feature may attempt to detect a stuck switch. When enabled, activation of the wash feature shall be limited to 10 seconds.

On vehicles with the Rear Wash feature a single reversing wash motor may be utilized for both the front and rear wash operation. In this system the wash motor is operated in one direction to spray fluid on the front windshield and then operated in the reverse direction to spray fluid on the rear window. The BCM Controls the reversing wash motor through two High Side Drive outputs. One controls the Front Wiper Motor Relay and one controls the Rear Wiper Relay.


S78
Turn Signal/
Multifunction
Switch
K9
Body
Control
Module
G24
Windshield
Washer
Pump
P16
Instrument
Cluster
B118B
Windshield
Washer
Fluid Level
Switch

# Brakes

## Park Brake

### Description and Operation

#### Park Brake System Description and Operation

##### System Component Description

The park brake system consists of the following:

**Park Brake Pedal Assembly:** Receives and transfers park brake system apply input force from driver to park brake cable system. Releases park brake system apply force on vehicles without a park brake release handle through the partial application of the park brake pedal.

**Park Brake Release Handle Assembly (If equipped):** Releases applied park brake system when pulled.

**Park Brake Cables:** Transfers input force received from park brake pedal, through park brake cable equalizer, to park brake apply lever.

**Park Brake Cable Equalizer:** Evenly distributes input force to both the left and right park brake units.

**Park Brake Apply Lever:** Multiplies and transfers input force to park brake actuator.

**Park Brake Actuator/Adjuster:** Uses multiplied input force from apply lever to expand park brake shoe toward the friction surface of the drum-in-hat portion of the rear brake rotor.

Threaded park brake actuators are also used to control clearance between the park brake shoe and the friction surface of the drum-in-hat portion of the rear brake rotor.

**Park Brake Shoe:** Applies mechanical output force from park brake actuator to friction surface of the drum-in-hat portion of the rear brake rotor.

##### System Operation

Park brake apply input force is received by the park brake pedal assembly being depressed, transferred and evenly distributed, through the park brake cables and the park brake cable equalizer, to the left and right park brake apply levers. The park brake apply levers multiply and transfer the apply input force to the park brake actuators which expand the park brake shoe toward the friction surface of the drum-in-hat portion of the rear brake rotor in order to prevent the rotation of the rear tire and wheel assemblies. The park brake release handle assembly, if equipped, or the partial application of the park brake pedal releases an applied park brake system when it is pulled rearward.

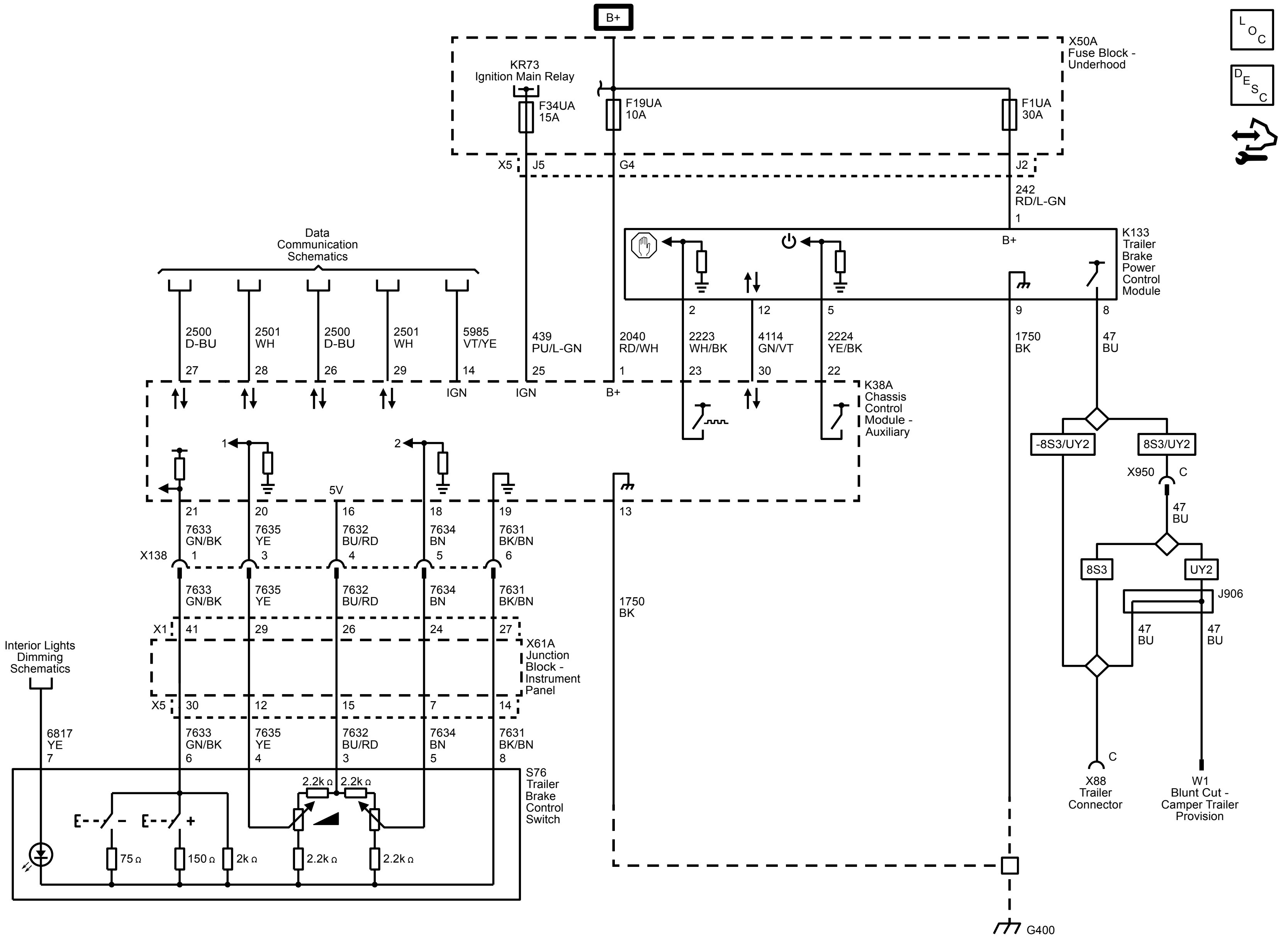
# Brakes

## Trailer Brake Controls

### Schematic and Routing Diagrams

### Trailer Brake Control Schematics

#### Trailer Brake (JL1)


B+
X50A
Fuse Block -
Underhood
KR73
Ignition Main Relay
F34UA
15A
F19UA
10A
F1UA
30A
X5
J5
G4
J2
242
RD/L-GN
1
K133
Trailer
Brake
Power
Control
Module
B+
2
12
5
9
8
Data
Communication
Schematics
2500
D-BU
2501
WH
2500
D-BU
2501
WH
5985
VT/YE
439
PU/L-GN
2040
RD/WH
2223
WH/BK
4114
GN/VT
2224
YE/BK
1750
BK
47
BU
27
28
26
29
14
25
1
23
30
22
IGN
IGN
B+
K38A
Chassis
Control
Module -
Auxiliary
-8S3/UY2
8S3/UY2
X950
C
47
BU
1
2
5V
21
20
16
18
19
13
7633
GN/BK
7635
YE
7632
BU/RD
7634
BN
7631
BK/BN
X138
1
3
4
5
6
7633
GN/BK
7635
YE
7632
BU/RD
7634
BN
7631
BK/BN
1750
BK
8S3
UY2
J906
X1
41
29
26
24
27
X61A
Junction
Block -
Instrument
Panel
47
BU
47
BU
Interior Lights
Dimming
Schematics
X5
30
12
15
7
14
6817
YE
7
7633
GN/BK
6
7635
YE
4
7632
BU/RD
3
7634
BN
5
7631
BK/BN
8
S76
Trailer
Brake
Control
Switch
2.2k Ω
2.2k Ω
+
75 Ω
150 Ω
2k Ω
2.2k Ω
2.2k Ω
C
X88
Trailer
Connector
W1
Blunt Cut -
Camper Trailer
Provision
G400
L O C
D E S C

# Description and Operation

## Trailer Brake Controls Description and Operation

A trailer brake control system is used to control the amount of trailer braking power that is made available to trailers with brakes that require a controlled electrical output signal for actuation.

The power output to the trailer brakes is based on both the amount of braking being applied by the vehicle's brake system and on the type of trailer brakes detected.

### The Trailer Brake Control System is compatible with two types of Trailer Brake Systems as listed below:

1. **Electric Brakes** A controlled electrical output signal energizes an electric-magnet/lever arm assembly that directly actuates the brake mechanism. The GDS name for this system is "Electromagnetic Brakes".
2. **Electric Over Hydraulic Brakes** A controlled electrical output signal energizes a remote, trailer mounted hydraulic pump to build brake pressure in a closed hydraulic system on the trailer. The hydraulic fluid pressure actuates the brake mechanism. The GDS name for this system is "Electrohydraulic Brakes".

### Trailer Brake Output Versus Trailer Brake Type

- The trailer brake system characterizes the trailer brakes as either Electric Brake or Electric Over Hydraulic Brake automatically. This characterization may be affected by the number, type, and age of the trailer brake magnets, as well as any other devices installed on the trailer brakes (i.e. adapters for Electric Over Hydraulic brake functionality).
- The trailer brake system is fully operational with either characterization.
- Some features of the trailer brake system may be different based on the trailer brake type characterization. An example of this is at zero speed, where pressing the service brake pedal will produce output when the trailer brakes are characterized as Electric Brakes, but not when characterized as Electric Over Hydraulic Brakes.
- Sliding the manual trailer brake apply lever will produce output at zero speed for either characterization.

The user gain allows the driver to adjust the amount of trailer brake output to match the trailer load and road surface. The controller determines the desired trailer brake output and provides a control signal to the K133 Trailer Brake Power Control Module. The K133 Trailer Brake Power Control Module amplifies the signal and provides the output required to activate the Electric or Electric Over Hydraulic trailer brakes.

The trailer brake control can support up to a maximum of four axles with electric trailer brakes (8 brake magnets).

Connecting a trailer that is not compatible with the trailer brake system may result in reduced or complete loss of trailer braking. There may be an increase in stopping distance or trailer instability which could result in personal injury or damage to the vehicle, trailer or other property. An aftermarket controller may be available for use with trailers with surge or air trailer brake systems.

To determine the type of brakes on your trailer and the availability of controllers, check with your trailer manufacturer or dealer. Do not power up an aftermarket controller with the factory brake controller at the same time.

### The vehicle is equipped with the following trailer braking components:

- K38 Chassis Control Module
- K133 Trailer Brake Power Control Module
- S76 Trailer Brake Control Panel
- Manual Trailer Brake Apply
- Trailer Gain Adjustment
- Trailer Brake Driver Information Center Display

### Chassis Control Module

The K38 Chassis Control Module (CCM) is a serviceable GMLAN module. The chassis control module sends the low power commanded duty cycle signal to the trailer brake power control module. The trailer brake power control module amplifies the signal and provides an output that is required to drive the trailer brakes.

### Trailer Brake Power Control Module

The K133 Trailer Brake Power Control Module (TBPM) is a solid state power switching module that supplies power to the trailer brakes at the input command duty cycle. Diagnostic messages are sent from the TBPM to the CCM on a dedicated LIN bus.

### Trailer Brake Control Panel

The S76 Trailer Brake Control Panel contains the trailer gain and manual apply switches. It is located on the instrument panel to the left of the steering column. Refer to the instrument panel overview for more information on the location. The control panel and switches allows you to adjust the amount of output, referred to as trailer gain, available to the Electric or Electric Over Hydraulic brakes. It also allows you to manually apply the trailer brakes. The trailer brake control panel and switches are used along with the trailer brake display page on the driver information center to adjust and display power output to the trailer brakes.

### Manual Trailer Brake Apply

The manual trailer brake apply lever is located on the S76 Trailer Brake Control Panel and is used to apply the trailer's Electric or Electric Over Hydraulic brakes independent of the vehicle's brakes. This lever is used in the trailer gain adjustment procedure to properly adjust the power output to the trailer brakes.

Sliding the lever to the left will apply only the trailer brakes. The power output to the trailer is indicated in the trailer brake display page in the Driver Information Center (DIC). If the vehicle's service brakes are applied while using the manual trailer brake apply lever, the trailer output power will be the greater of the two.

The trailer and the vehicle's brake lamps will come on when either the vehicle's braking or manual trailer brakes are applied.

### Trailer Gain Adjustment

Trailer gain should be set for a specific trailering condition and must be adjusted any time vehicle loading, trailer loading or road surface conditions change. It is important to re-adjust trailer gain any time the tow vehicle, trailer loading or road surface conditions change or it you notice trailer wheel lock-up at any time while you are towing.

Setting the trailer gain properly is needed for the best trailer stopping performance. A trailer that is over-gained may result in locked trailer brakes. A trailer that is under-gained may result in not enough trailer braking. Both of these conditions may result in poor stopping and stability of the vehicle and trailer.

### Trailer Gain Adjustment Procedure

- Adjust trailer gain in 0.5 step increments up to 10 gain setting by using the gain adjustment +/− buttons on the trailer brake control panel switch. Pressing and holding a gain button will cause the trailer gain to continuously increment or decrement. To turn the output to the trailer off, set the gain to zero.
- Drive the tow vehicle and trailer combination on a level surface representative of the towing condition and free of traffic at approximately 32–40 km/h (20–25 mph) and fully apply the manual trailer brake apply lever mechanism located on the trailer brake control panel switch. Adjusting the trailer gain at slower speeds may result in an incorrect gain setting.
- Adjust the trailer gain to just below the threshold of trailer wheel lock-up . Trailer wheel lock-up may not occur if towing a heavily loaded trailer. In this case, adjust the trailer gain to the highest allowable setting for the towing condition.

## Hill Start Assist

The hill start assist allows the driver to launch the vehicle without a roll back when the driver is moving their foot from the brake pedal to the accelerator pedal. Refer to the hill start assist system in the anti-lock brake system description and operation document for more information.

## Trailer Sway Control

The trailer sway control can detect the vehicle yaw instability, caused by an attached trailer. Refer to the trailer sway control system in the anti-lock brake system description and operation document for more information.

## Driver Information Center Indicators and Messages

The following indicators are used to inform the driver of several different conditions:

### Trailer Connected

This message will be briefly displayed when a trailer with Electric or Electric Over Hydraulic brakes is first connected to the vehicle. This message will automatically turn off in about ten seconds. The driver can also acknowledge this message before it automatically turns off.

### Check Trailer Wiring

This message will be displayed if:

- The system detects that a trailer with Electric or Electric Over Hydraulic brakes is connected to the vehicle and then the trailer harness becomes disconnected from the vehicle.
- The trailer connection is recognized initially and then a disconnect occurs while the vehicle is stationary. This message will automatically turn off in about thirty seconds. This message will also turn off if the driver acknowledges this message off or if the trailer harness is reconnected.
- A disconnect of the trailer wiring harness occurs while the vehicle is moving. The Check Trailer Wiring message will continue until the ignition is turned off. The message will also turn off if the driver acknowledges this message off or it the trailer harness is re-connected or repairs are completed.
- There is an electrical fault in the wiring to the electric trailer brakes. The Check Trailer Wiring message will continue as long as there is an electrical fault in the trailer wiring. This message will also turn off if the driver acknowledges this message off.
- A poor connection at the 7–way connector may cause the Check Trailer Wiring message. Some aftermarket 7–way trailer side connector adapters or plugs may cause deformation or excessive wear to the vehicle’s trailer terminals. It is recommended that you use an OEM or Pollak heavy duty 7–way trailer side connector adapter.

## Service Trailer Brake System

This message will be displayed when there is a problem with the trailer brake control system. The trailer brake system may not be fully functional, or may not be functioning at all. The trailer brake system is designed to provide trailer braking, if possible, even when faults prevent it from being fully functional. This reduced functionality includes:

1. Providing trailer braking when the master cylinder pressure or brake pedal switch are faulted.
2. Providing trailer braking when hill start assist and trailer sway control communication is faulted.
3. Providing trailer braking when certain manual trailer brake apply lever faults are present.

These conditions should be repaired to allow the trailer brake system to be fully functional.

## Trailer Gain and Output Display

This display menu can be accessed by scrolling through the DIC menu, or any time the trailer gain +/− button is depressed, or the manual trailer brake apply lever is actuated. The trailer output is displayed from 0 to full output and indicates the output power provided to the trailer brakes, relative to the gain setting.

After the electrical connection is made to a trailer equipped with electric brakes or electric over hydraulic brakes, the TRAILER CONNECTED message will be displayed momentarily on the DIC. The Trailer Brake Display Page can be selected on the DIC showing TRAILER GAIN and OUTPUT, after all vehicle related service messages are acknowledged by the driver. Depending on which instrument panel cluster is in the vehicle, the DIC may display dashed lines, a greyed out display, or it may be blank signifying a disconnected trailer or a trailer brake fault condition.

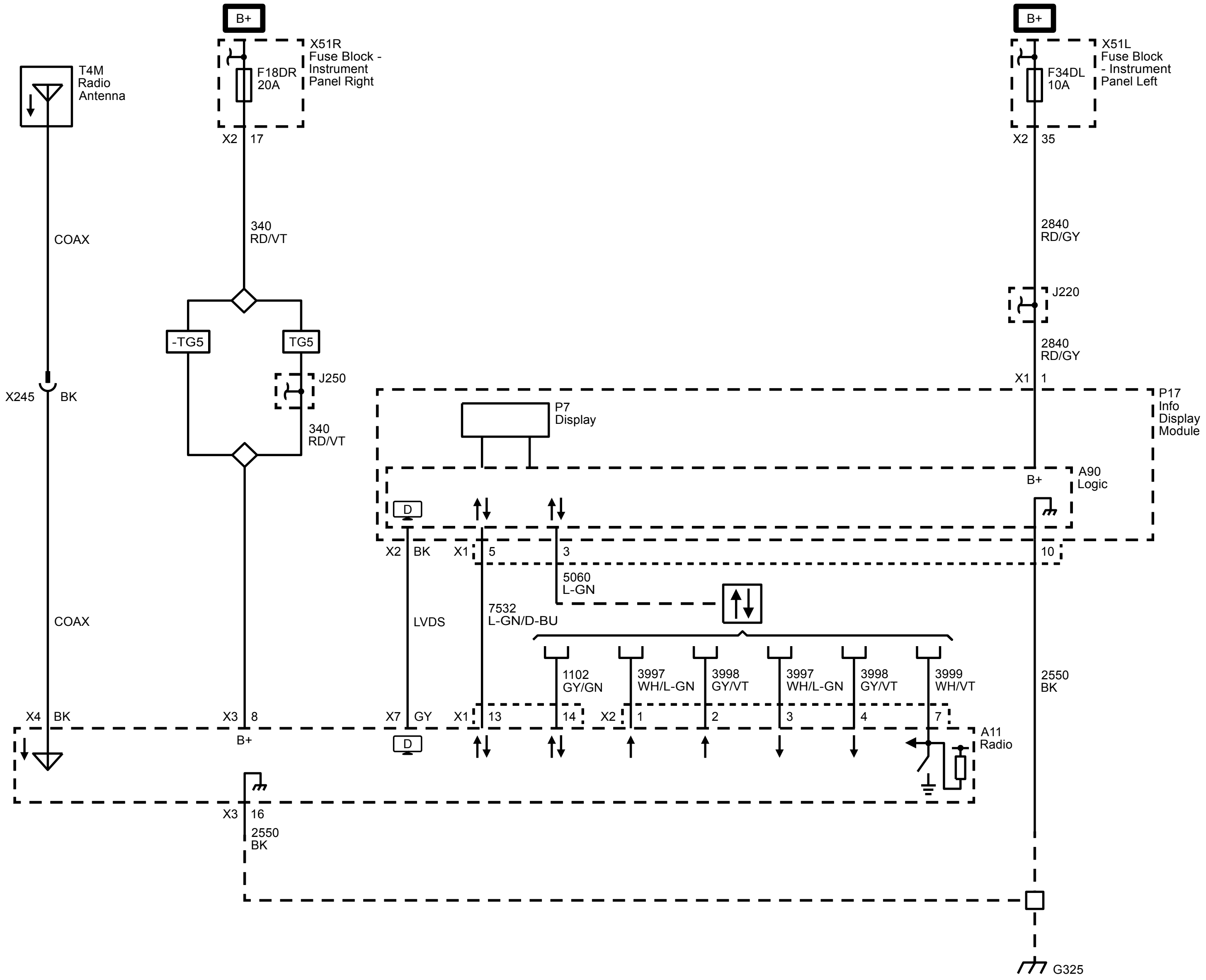
# Driver Information and Entertainment

## Cellular, Entertainment, and Navigation

### Schematic and Routing Diagrams

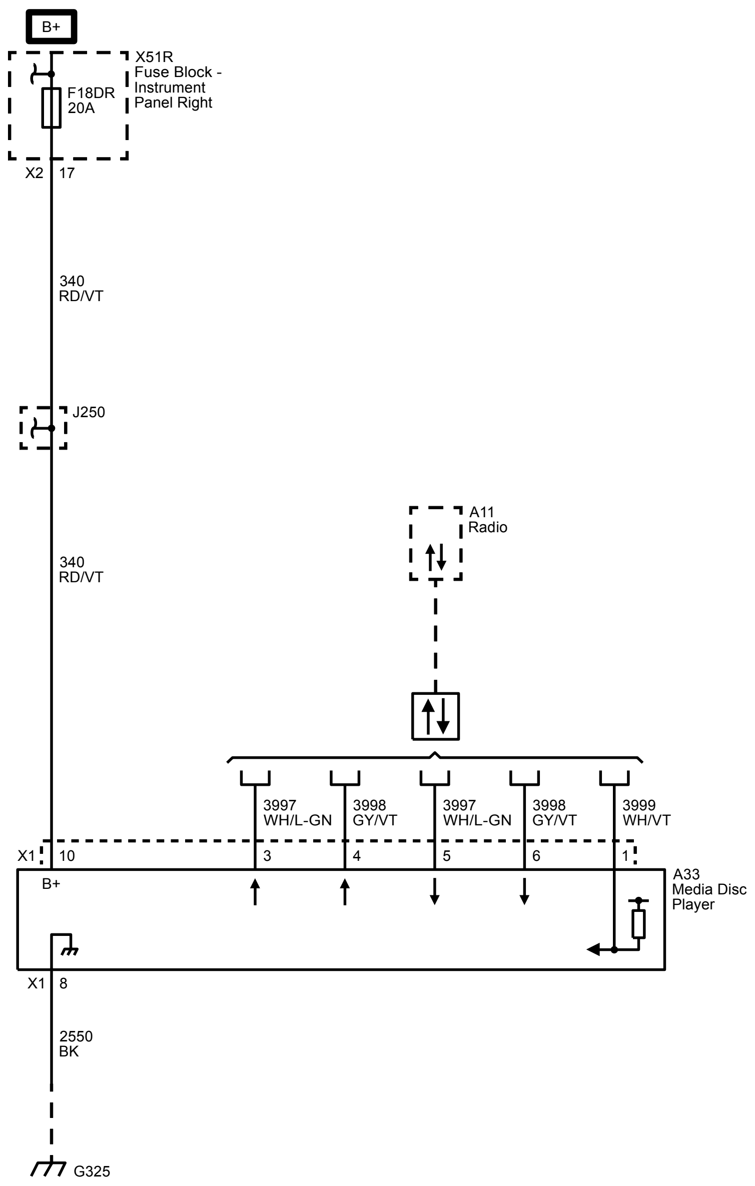
#### Radio/Navigation System Schematics (IO3)

#### Radio Power, Ground, Serial Data and Antenna

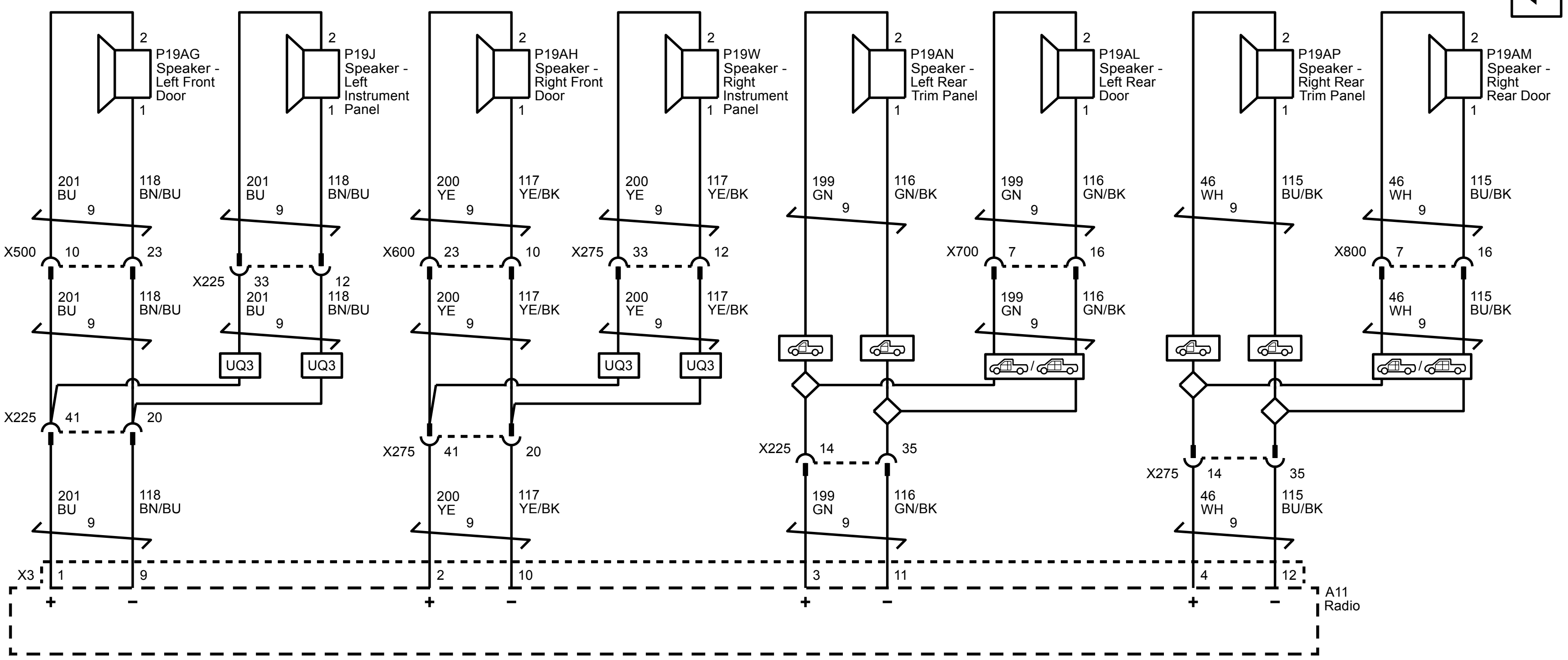


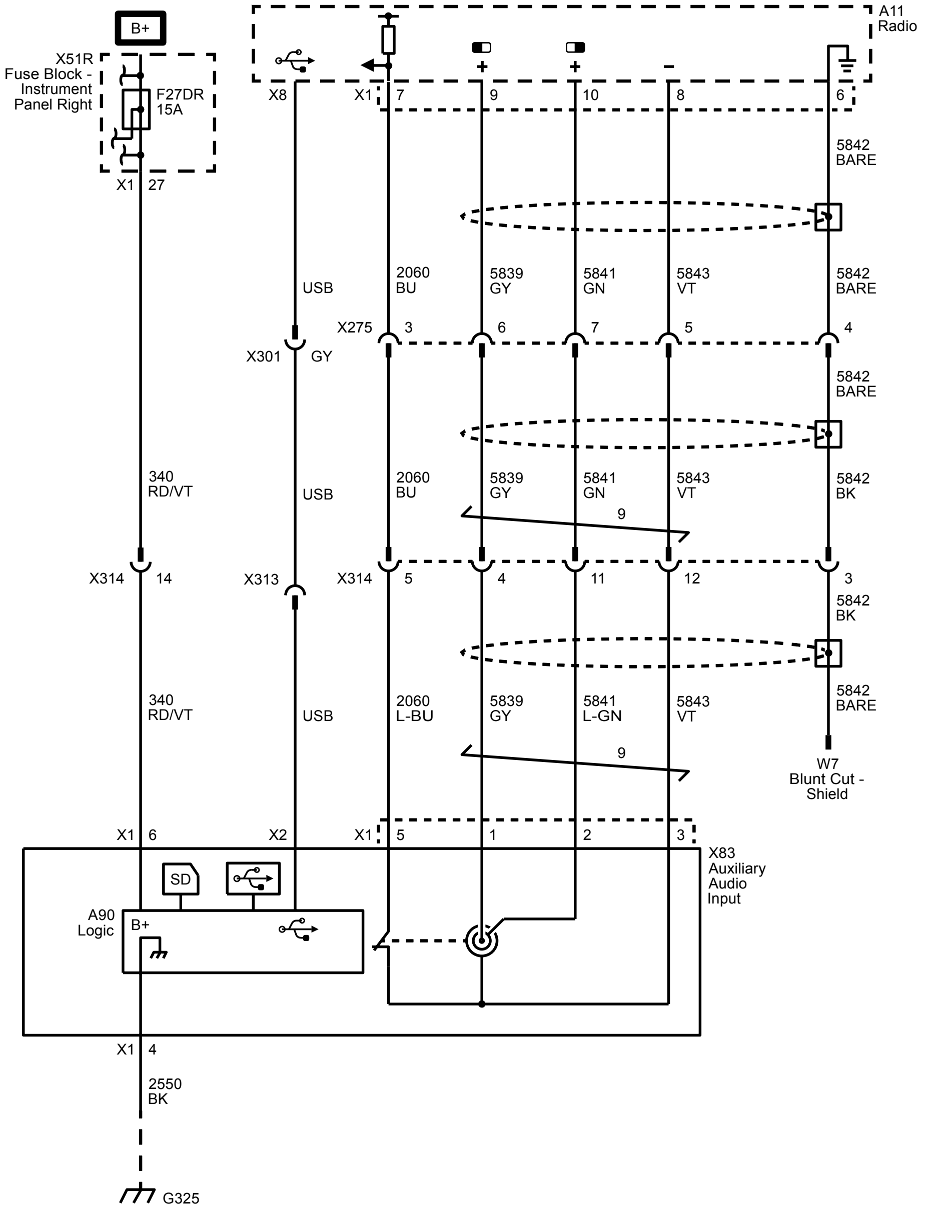
B+
X51R Fuse Block - Instrument Panel Right
F18DR 20A
X2 17
340 RD/VT
-TG5
TG5
J250
340 RD/VT
T4M Radio Antenna
COAX
X245 BK
COAX
B+
X51L Fuse Block - Instrument Panel Left
F34DL 10A
X2 35
2840 RD/GY
J220
2840 RD/GY
X1 1
P17 Info Display Module
P7 Display
A90 Logic
B+
D
X2 BK
X1 5
3
10
5060 L-GN
7532 L-GN/D-BU
LVDS
2550 BK
1102 GY/GN
3997 WH/L-GN
3998 GY/VT
3997 WH/L-GN
3998 GY/VT
3999 WH/VT
X4 BK
X3 8
X7 GY
X1 13
14
X2 1
2
3
4
7
A11 Radio
B+
D
X3 16
2550 BK
G325

## Media Disc Player Power, Ground and Serial Data (TG5)


B+
X51R
Fuse Block - Instrument Panel Right
F18DR
20A
X2
17
340
RD/VT
J250
340
RD/VT
A11
Radio
3997
WH/L-GN
3998
GY/VT
3997
WH/L-GN
3998
GY/VT
3999
WH/VT
X1
10
3
4
5
6
1
B+
A33
Media Disc Player
X1
8
2550
BK
G325

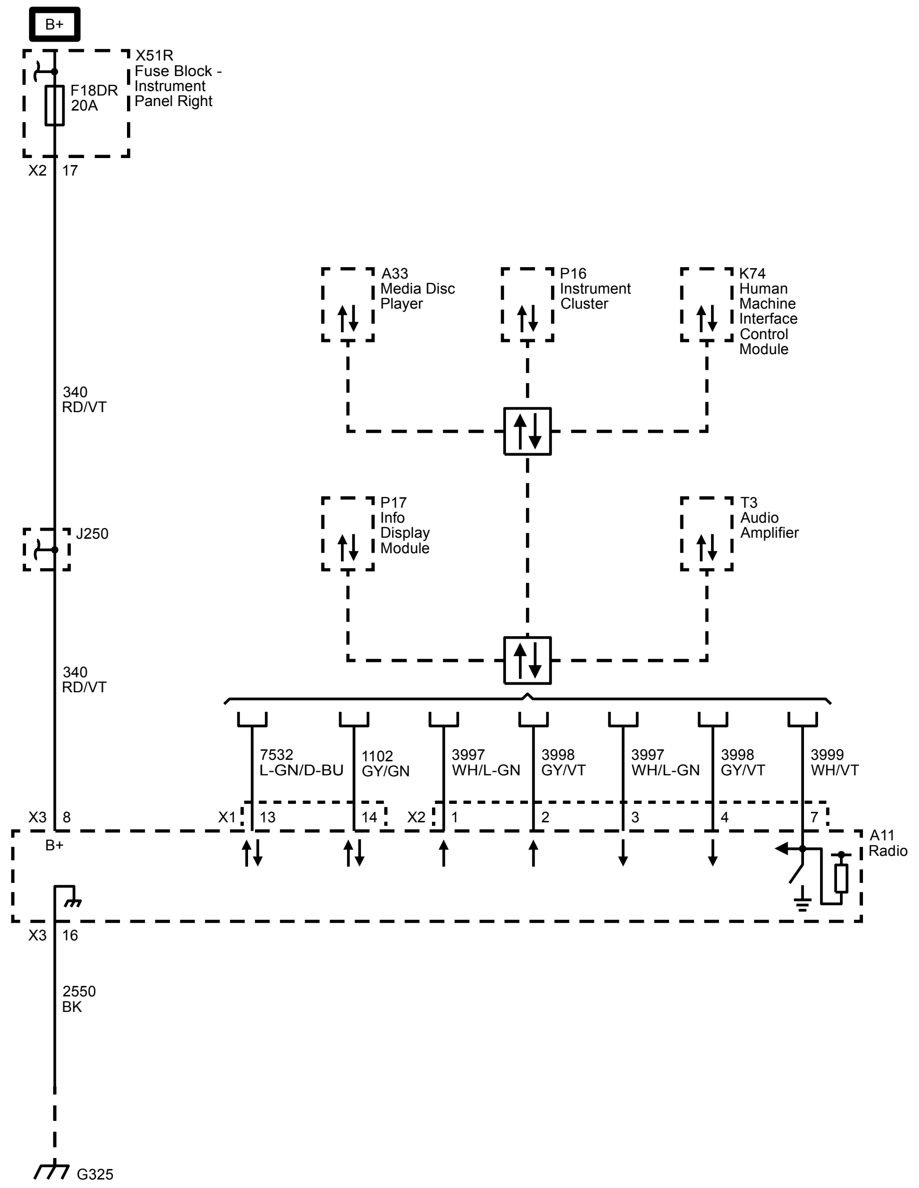
L O C
D E S C


P19AG Speaker - Left Front Door
P19J Speaker - Left Instrument Panel
P19AH Speaker - Right Front Door
P19W Speaker - Right Instrument Panel
P19AN Speaker - Left Rear Trim Panel
P19AL Speaker - Left Rear Door
P19AP Speaker - Right Rear Trim Panel
P19AM Speaker - Right Rear Door
201 BU
118 BN/BU
200 YE
117 YE/BK
199 GN
116 GN/BK
46 WH
115 BU/BK
X500
X225
X600
X275
X700
X800
UQ3
X3
A11 Radio
+
−

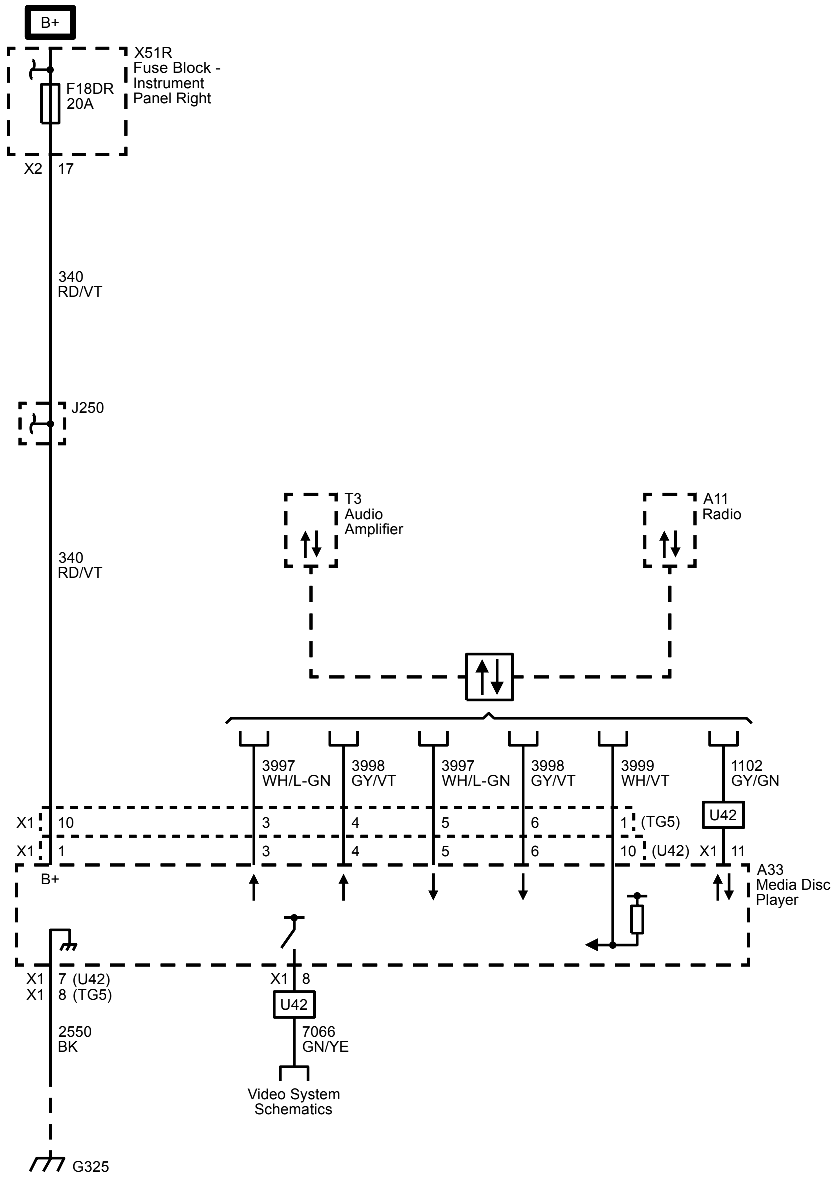

B+
X51R
Fuse Block -
Instrument
Panel Right
F27DR
15A
X1 27
A11
Radio
X8
X1 7
9
10
8
6
+
+
–
5842
BARE
USB
2060
BU
5839
GY
5841
GN
5843
VT
5842
BARE
X275 3
6
7
5
4
X301
GY
5842
BARE
340
RD/VT
USB
2060
BU
5839
GY
5841
GN
5843
VT
5842
BK
9
X314 14
X313
X314 5
4
11
12
3
5842
BK
340
RD/VT
USB
2060
L-BU
5839
GY
5841
L-GN
5843
VT
5842
BARE
9
W7
Blunt Cut -
Shield
X1 6
X2
X1 5
1
2
3
X83
Auxiliary
Audio
Input
SD
A90
Logic
B+
X1 4
2550
BK
G325

## Radio Power, Ground and Serial Data

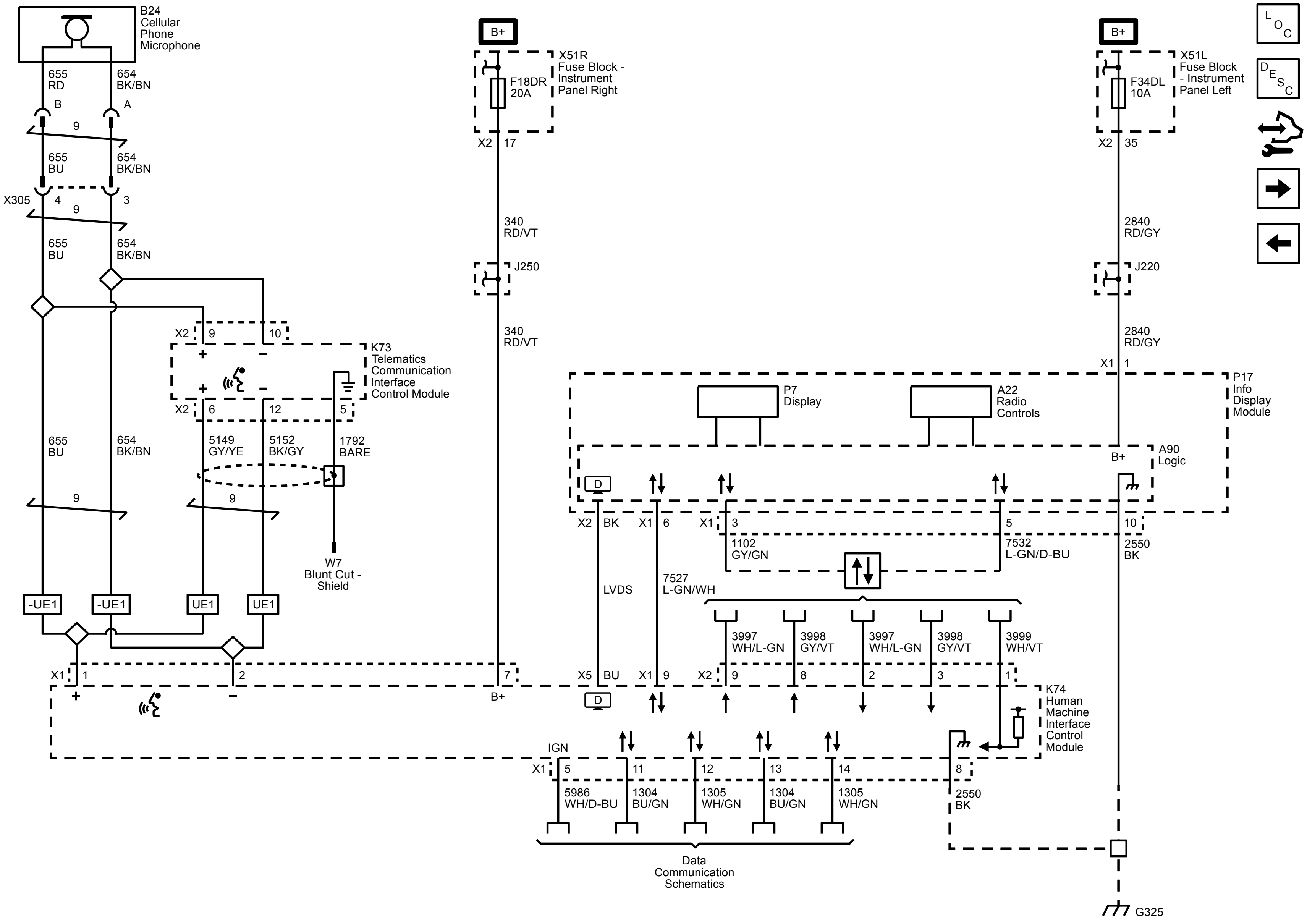
LOC
DESC

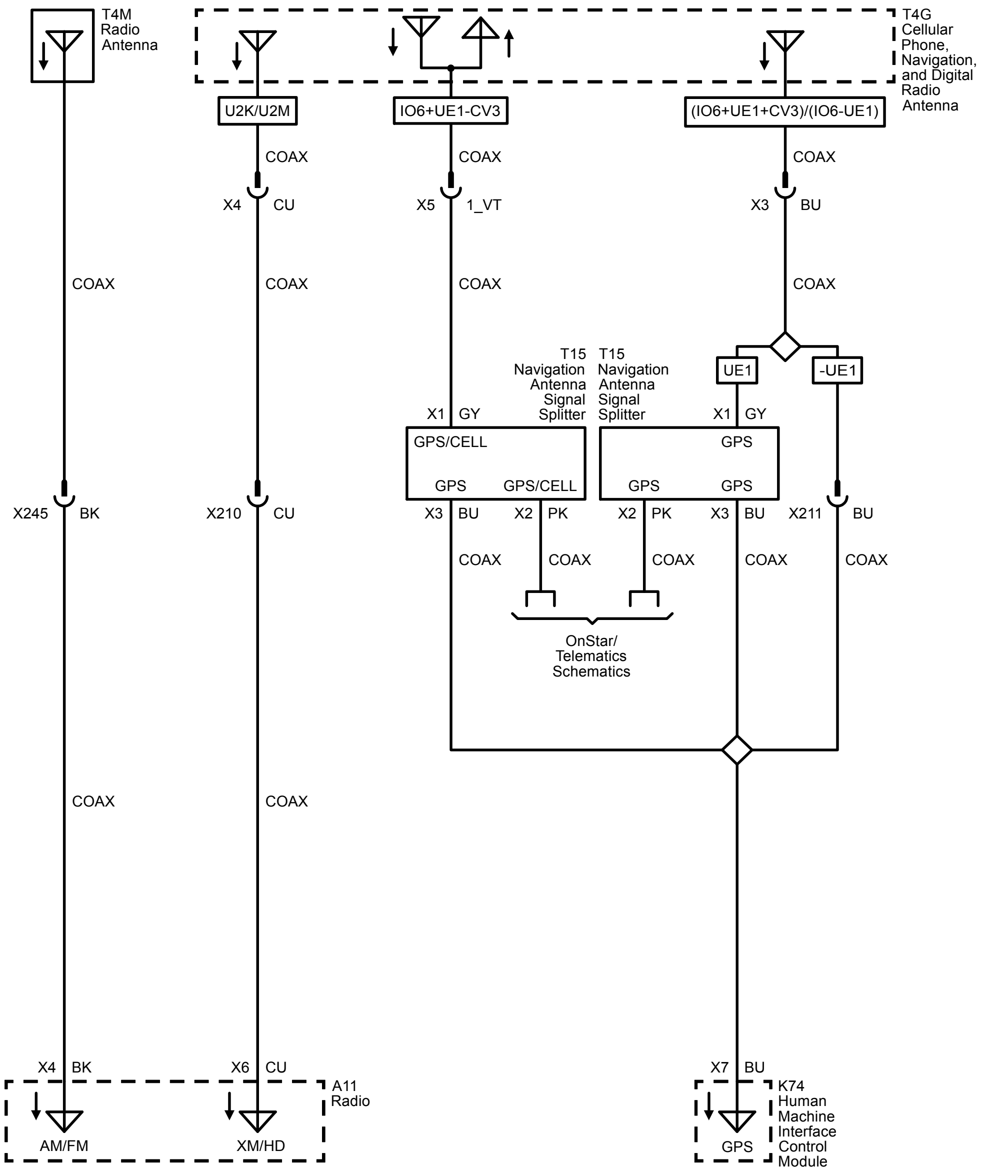

B+
X51R
Fuse Block - Instrument Panel Right
F18DR
20A
X2
17
340
RD/VT
J250
340
RD/VT
A33
Media Disc Player
P16
Instrument Cluster
K74
Human Machine Interface Control Module
P17
Info Display Module
T3
Audio Amplifier
7532
L-GN/D-BU
1102
GY/GN
3997
WH/L-GN
3998
GY/VT
3997
WH/L-GN
3998
GY/VT
3999
WH/VT
X3
8
X1
13
14
X2
1
2
3
4
7
B+
A11
Radio
X3
16
2550
BK
G325

## Media Disc Player Power, Ground and Serial Data (TG5 or U42)


B+
X51R
Fuse Block - Instrument Panel Right
F18DR
20A
X2
17
340
RD/VT
J250
340
RD/VT
T3
Audio Amplifier
A11
Radio
3997
WH/L-GN
3998
GY/VT
3997
WH/L-GN
3998
GY/VT
3999
WH/VT
1102
GY/GN
U42
X1
10
3
4
5
6
1
(TG5)
X1
1
3
4
5
6
10
(U42)
X1
11
B+
A33
Media Disc Player
X1
7 (U42)
X1
8 (TG5)
X1
8
U42
2550
BK
7066
GN/YE
Video System Schematics
G325

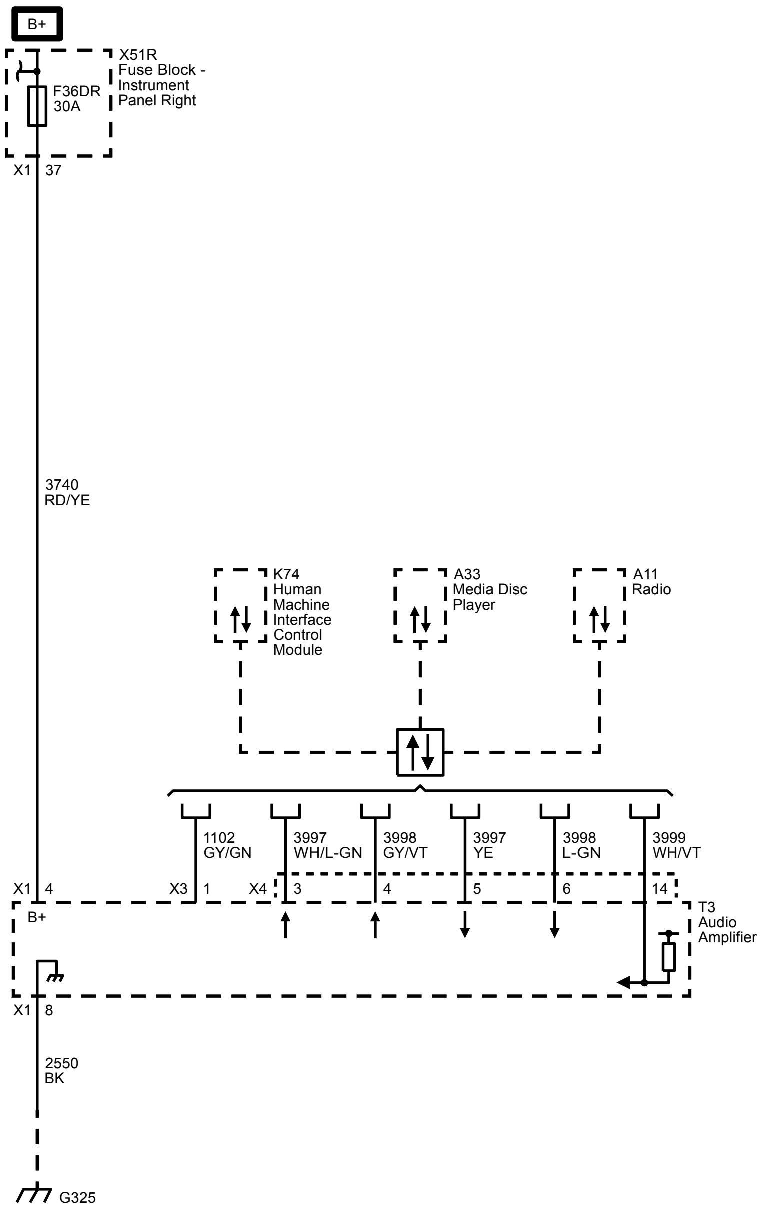
# Human Machine Interface, Display, Cellular Microphone, Power, Ground and Serial Data


B24
Cellular
Phone
Microphone
655
RD
654
BK/BN
B
A
9
655
BU
654
BK/BN
X305
4
3
9
655
BU
654
BK/BN
B+
X51R
Fuse Block -
Instrument
Panel Right
F18DR
20A
X2
17
340
RD/VT
J250
340
RD/VT
B+
X51L
Fuse Block
- Instrument
Panel Left
F34DL
10A
X2
35
2840
RD/GY
J220
2840
RD/GY
X1
1
L
O
C
D
E
S
C
X2
9
10
K73
Telematics
Communication
Interface
Control Module
+
−
+
−
X2
6
12
5
655
BU
654
BK/BN
5149
GY/YE
5152
BK/GY
1792
BARE
9
9
W7
Blunt Cut -
Shield
-UE1
-UE1
UE1
UE1
P17
Info
Display
Module
P7
Display
A22
Radio
Controls
A90
Logic
B+
D
X2
BK
X1
6
X1
3
5
10
1102
GY/GN
7532
L-GN/D-BU
2550
BK
LVDS
7527
L-GN/WH
3997
WH/L-GN
3998
GY/VT
3997
WH/L-GN
3998
GY/VT
3999
WH/VT
X1
1
2
7
X5
BU
X1
9
X2
9
8
2
3
1
+
−
B+
D
K74
Human
Machine
Interface
Control
Module
IGN
X1
5
11
12
13
14
8
5986
WH/D-BU
1304
BU/GN
1305
WH/GN
1304
BU/GN
1305
WH/GN
2550
BK
Data
Communication
Schematics
G325

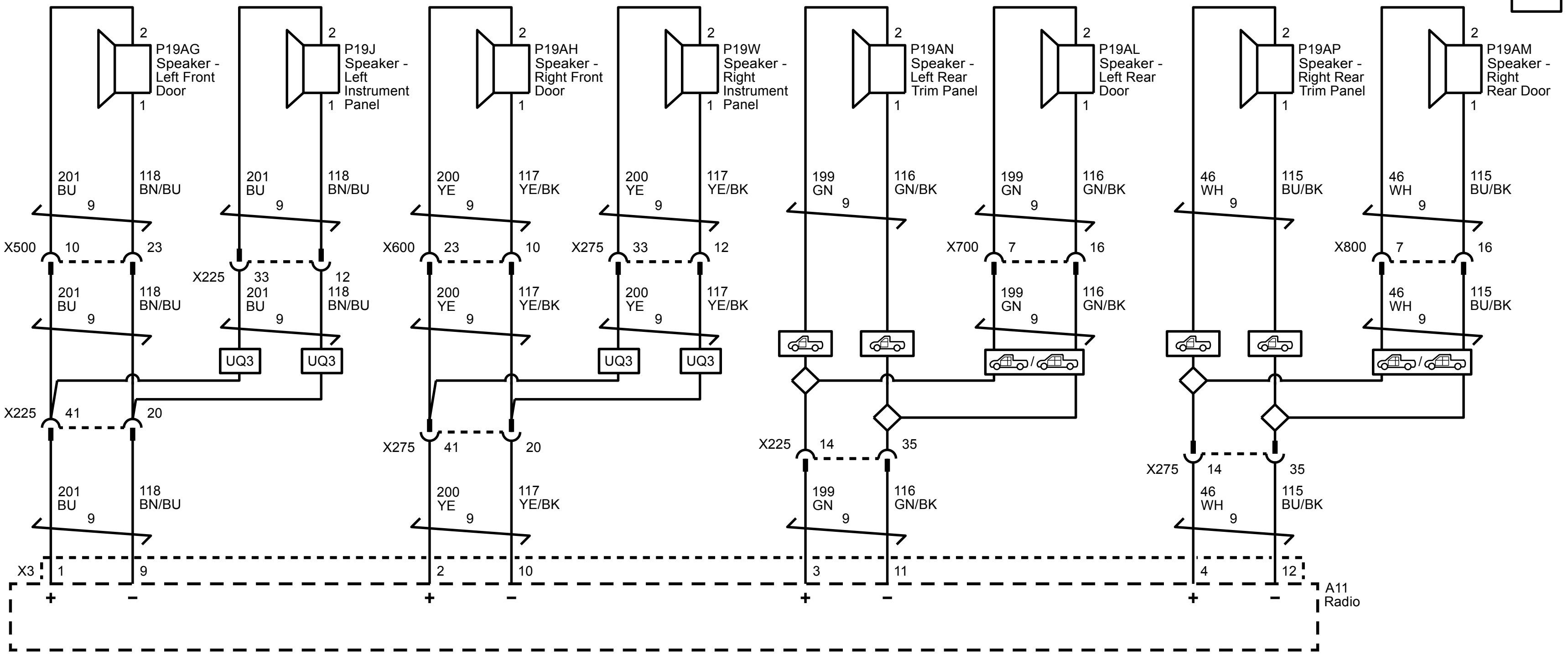

T4M
Radio
Antenna
T4G
Cellular
Phone,
Navigation,
and Digital
Radio
Antenna
U2K/U2M
IO6+UE1-CV3
(IO6+UE1+CV3)/(IO6-UE1)
COAX
X4
CU
X5
1_VT
X3
BU
T15
Navigation
Antenna
Signal
Splitter
UE1
-UE1
X1
GY
GPS/CELL
GPS
X245
BK
X210
X2
PK
X211
OnStar/
Telematics
Schematics
X6
X7
A11
Radio
AM/FM
XM/HD
K74
Human
Machine
Interface
Control
Module

LOC
DESC

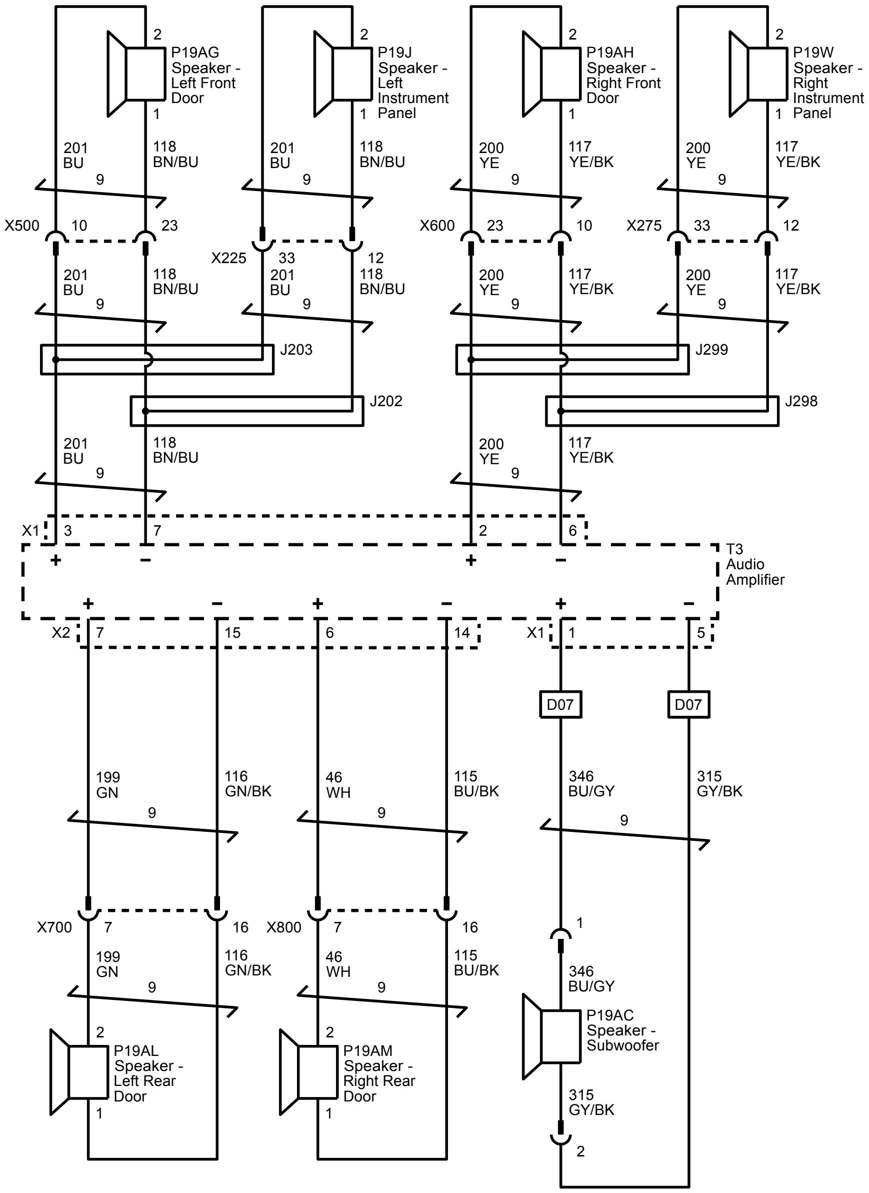
## Audio Amplifier Power, Ground and Serial Data (UQA or UQG)


B+
X51R
Fuse Block - Instrument Panel Right
F36DR
30A
X1 37
3740
RD/YE
K74
Human Machine Interface Control Module
A33
Media Disc Player
A11
Radio
1102
GY/GN
3997
WH/L-GN
3998
GY/VT
3997
YE
3998
L-GN
3999
WH/VT
X1 4
X3 1
X4 3
4
5
6
14
B+
T3
Audio Amplifier
X1 8
2550
BK
G325

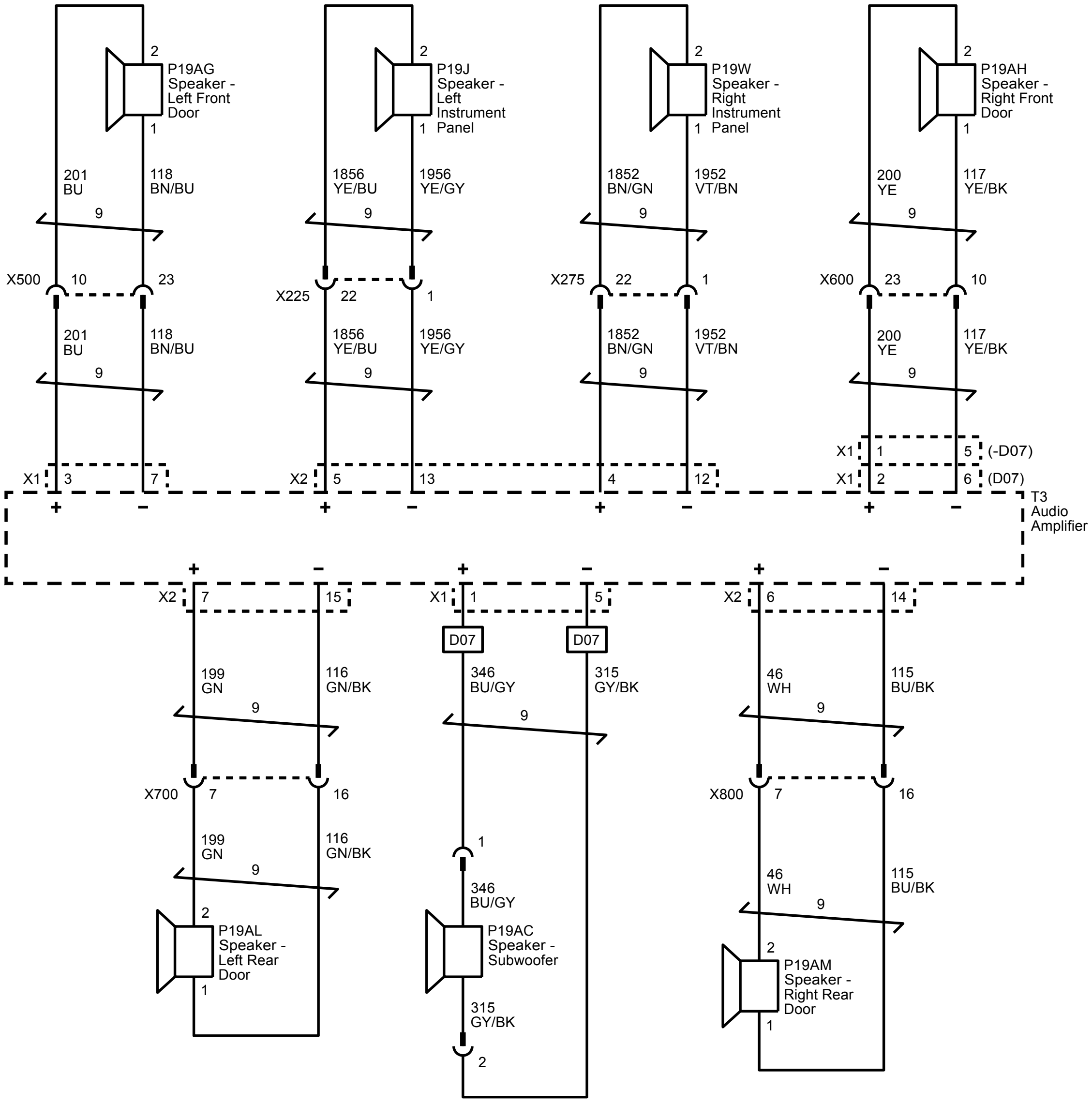
## Speakers (UQ3 or UQ5)

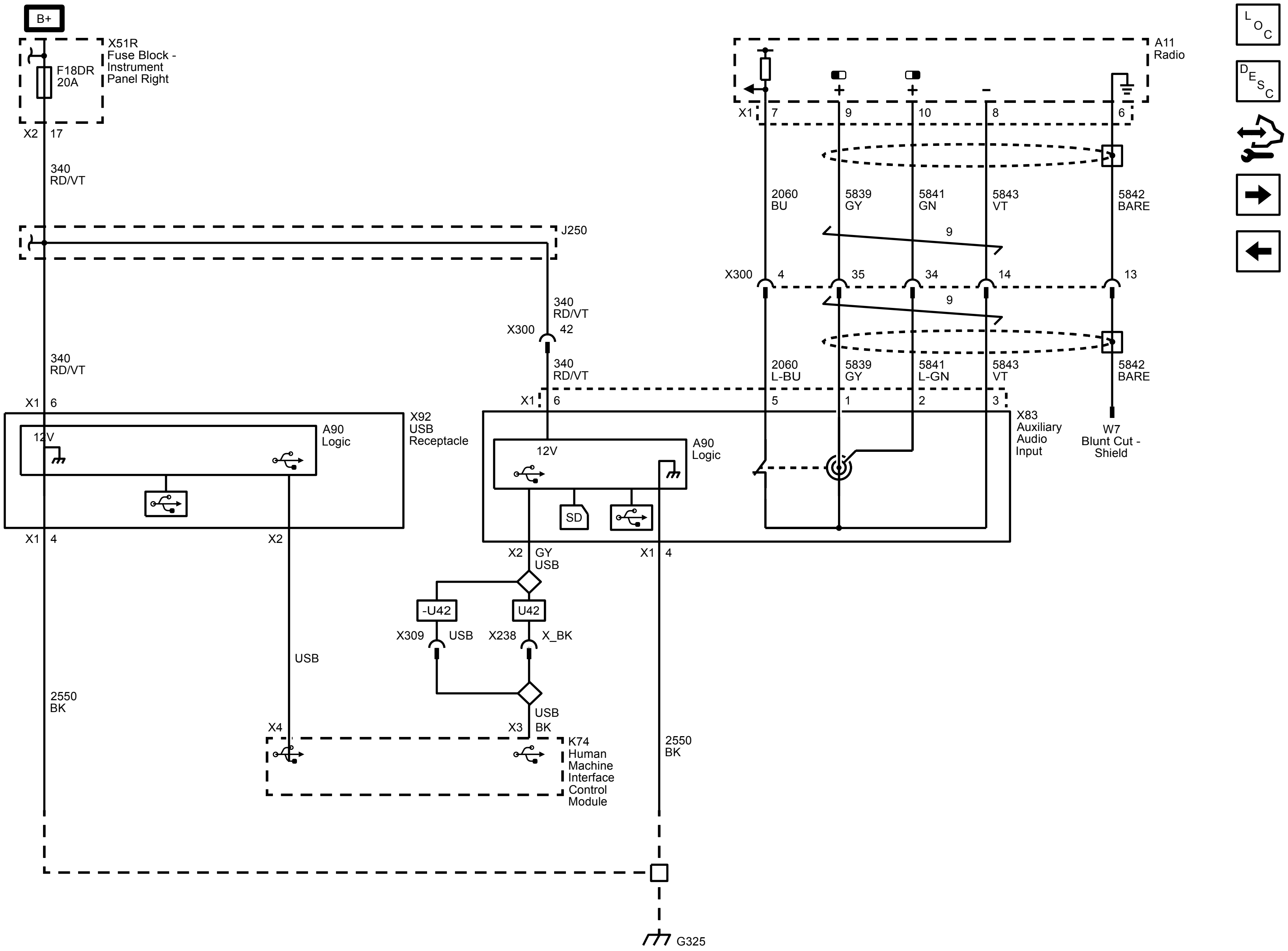

P19AG Speaker - Left Front Door
P19J Speaker - Left Instrument Panel
P19AH Speaker - Right Front Door
P19W Speaker - Right Instrument Panel
P19AN Speaker - Left Rear Trim Panel
P19AL Speaker - Left Rear Door
P19AP Speaker - Right Rear Trim Panel
P19AM Speaker - Right Rear Door
2
1
201 BU
118 BN/BU
200 YE
117 YE/BK
199 GN
116 GN/BK
46 WH
115 BU/BK
9
X500
10
23
X225
33
12
X600
23
10
X275
33
12
X700
7
16
X800
7
16
UQ3
X225
41
20
X275
41
20
X225
14
35
X275
14
35
X3
1
9
2
10
3
11
4
12
+
–
A11 Radio

## Speakers (UQG)

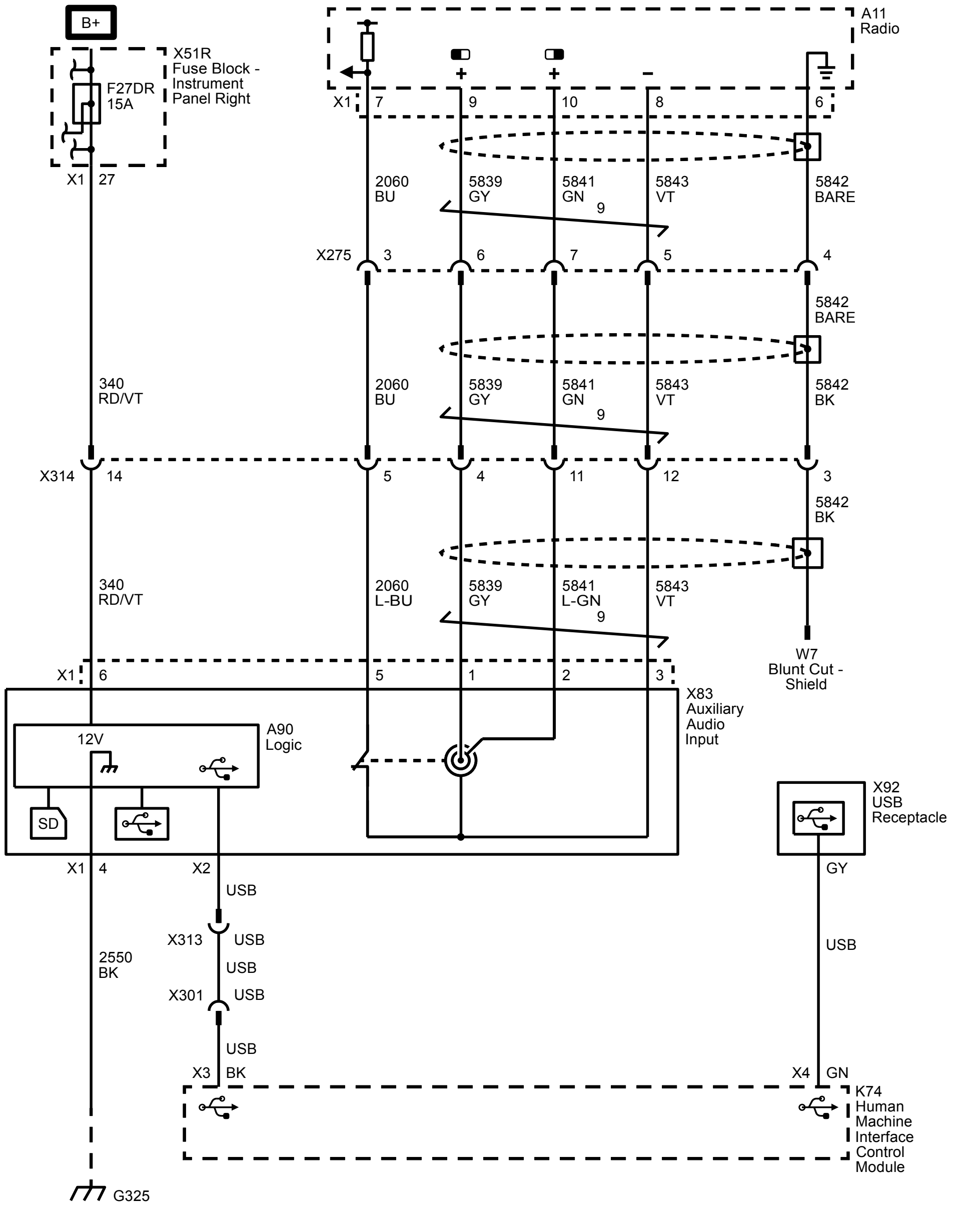

2
P19AG
Speaker -
Left Front
Door
1
2
P19J
Speaker -
Left
Instrument
Panel
1
2
P19AH
Speaker -
Right Front
Door
1
2
P19W
Speaker -
Right
Instrument
Panel
1
201
BU
118
BN/BU
201
BU
118
BN/BU
200
YE
117
YE/BK
200
YE
117
YE/BK
9
X500
10
23
X225
33
12
X600
23
10
X275
33
12
J203
J202
J299
J298
X1
3
7
2
6
+
−
+
−
T3
Audio
Amplifier
+
−
+
−
+
−
X2
7
15
6
14
X1
1
5
D07
D07
199
GN
116
GN/BK
46
WH
115
BU/BK
346
BU/GY
315
GY/BK
X700
7
16
X800
7
16
1
2
P19AL
Speaker -
Left Rear
Door
1
2
P19AM
Speaker -
Right Rear
Door
1
P19AC
Speaker -
Subwoofer
2

# Speakers (UQA)


P19AG
Speaker - Left Front Door
2
1
201
BU
118
BN/BU
9
X500
10
23
P19J
Speaker - Left Instrument Panel
1856
YE/BU
1956
YE/GY
X225
22
1
P19W
Speaker - Right Instrument Panel
1852
BN/GN
1952
VT/BN
X275
22
1
P19AH
Speaker - Right Front Door
200
YE
117
YE/BK
X600
23
10
X1
3
7
X2
5
13
4
12
X1
1
5
(-D07)
X1
2
6
(D07)
+
−
T3
Audio Amplifier
X2
7
15
X1
1
5
X2
6
14
D07
D07
199
GN
116
GN/BK
346
BU/GY
315
GY/BK
46
WH
115
BU/BK
X700
7
16
X800
7
16
P19AL
Speaker - Left Rear Door
P19AC
Speaker - Subwoofer
P19AM
Speaker - Right Rear Door

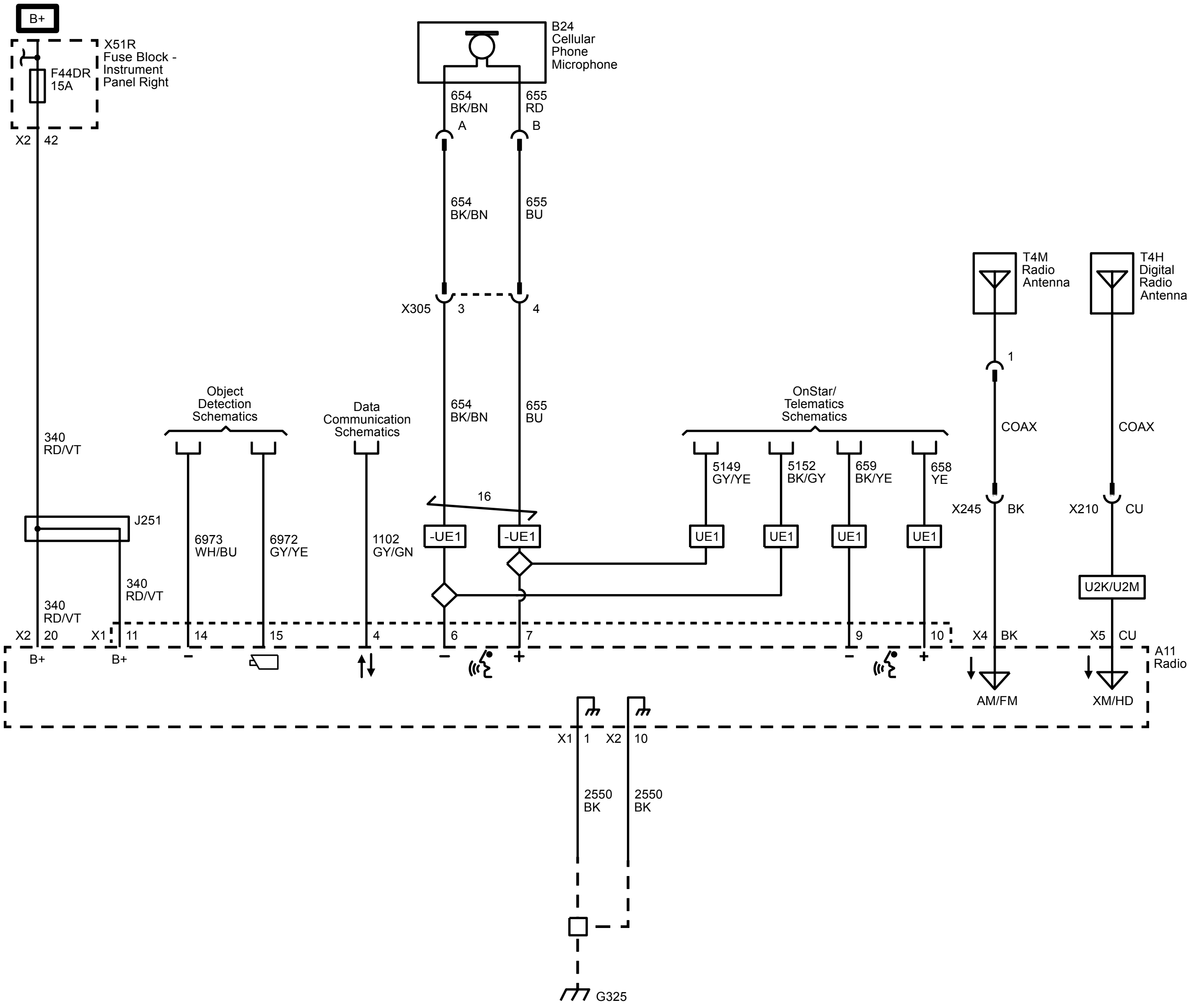

B+
X51R
Fuse Block - Instrument Panel Right
F18DR
20A
X2 17
340 RD/VT
J250
340 RD/VT
X300 42
340 RD/VT
340 RD/VT
X1 6
12V
A90 Logic
X92 USB Receptacle
X1 4
X2
USB
2550 BK
X1 6
12V
A90 Logic
SD
X2 GY USB
X1 4
X83 Auxiliary Audio Input
-U42
U42
X309 USB
X238 X_BK
USB BK
X4
X3
K74 Human Machine Interface Control Module
2550 BK
G325
A11 Radio
X1 7
9
10
8
6
2060 BU
5839 GY
5841 GN
5843 VT
5842 BARE
9
X300 4
35
34
14
13
9
2060 L-BU
5839 GY
5841 L-GN
5843 VT
5842 BARE
5
1
2
3
W7 Blunt Cut - Shield
LOC
DESC

# Auxiliary Inputs (D09)

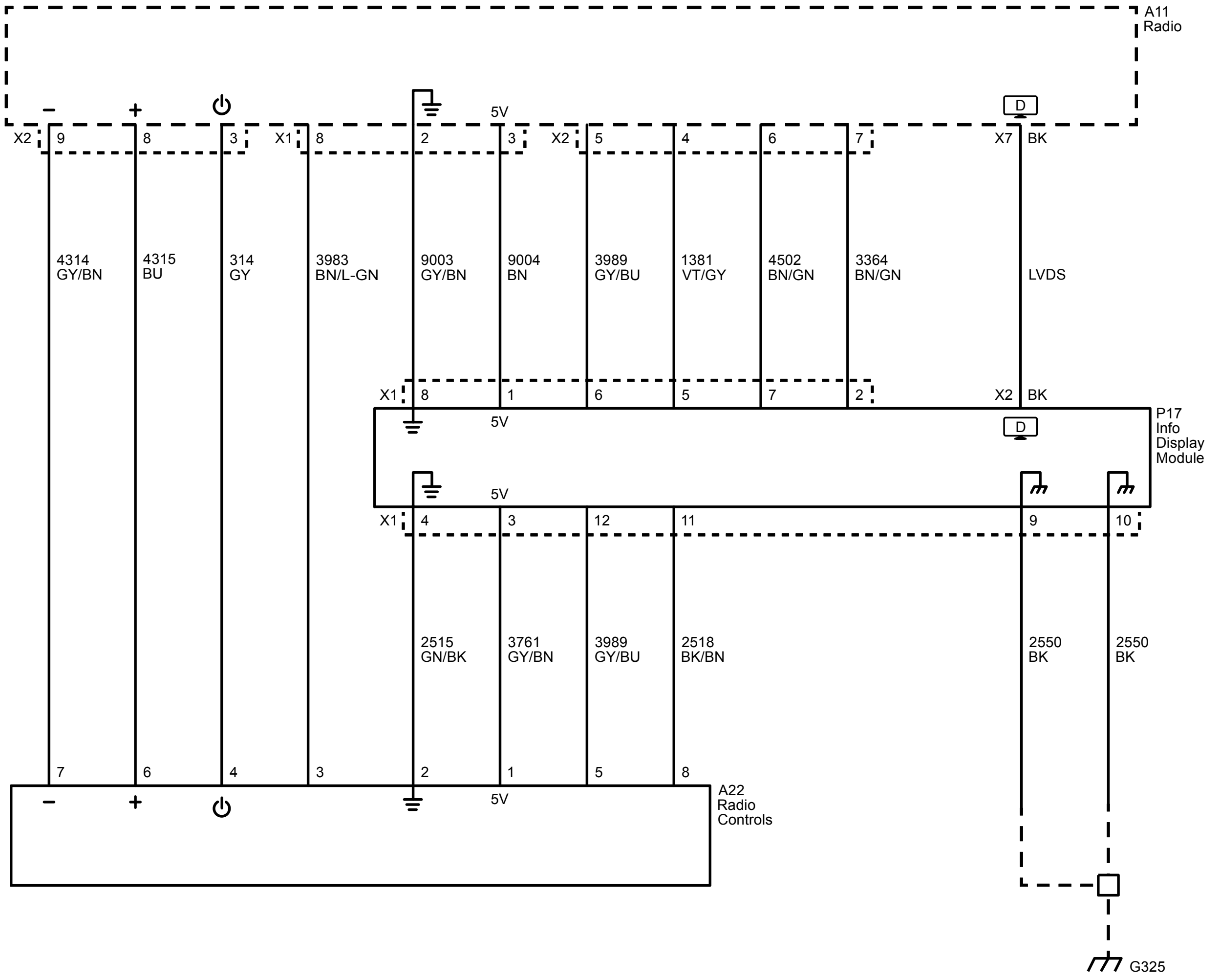

B+
X51R
Fuse Block -
Instrument
Panel Right
F27DR
15A
X1
27
A11
Radio
X1
7
9
10
8
6
+
+
–
2060
BU
5839
GY
5841
GN
5843
VT
9
5842
BARE
X275
3
6
7
5
4
5842
BARE
340
RD/VT
2060
BU
5839
GY
5841
GN
5843
VT
9
5842
BK
X314
14
5
4
11
12
3
5842
BK
340
RD/VT
2060
L-BU
5839
GY
5841
L-GN
5843
VT
9
W7
Blunt Cut -
Shield
X1
6
5
1
2
3
X83
Auxiliary
Audio
Input
12V
A90
Logic
SD
X1
4
X2
USB
X313
USB
USB
X301
USB
USB
2550
BK
X92
USB
Receptacle
GY
USB
X3
BK
X4
GN
K74
Human
Machine
Interface
Control
Module
G325

# Radio/Navigation System Schematics (IOB)

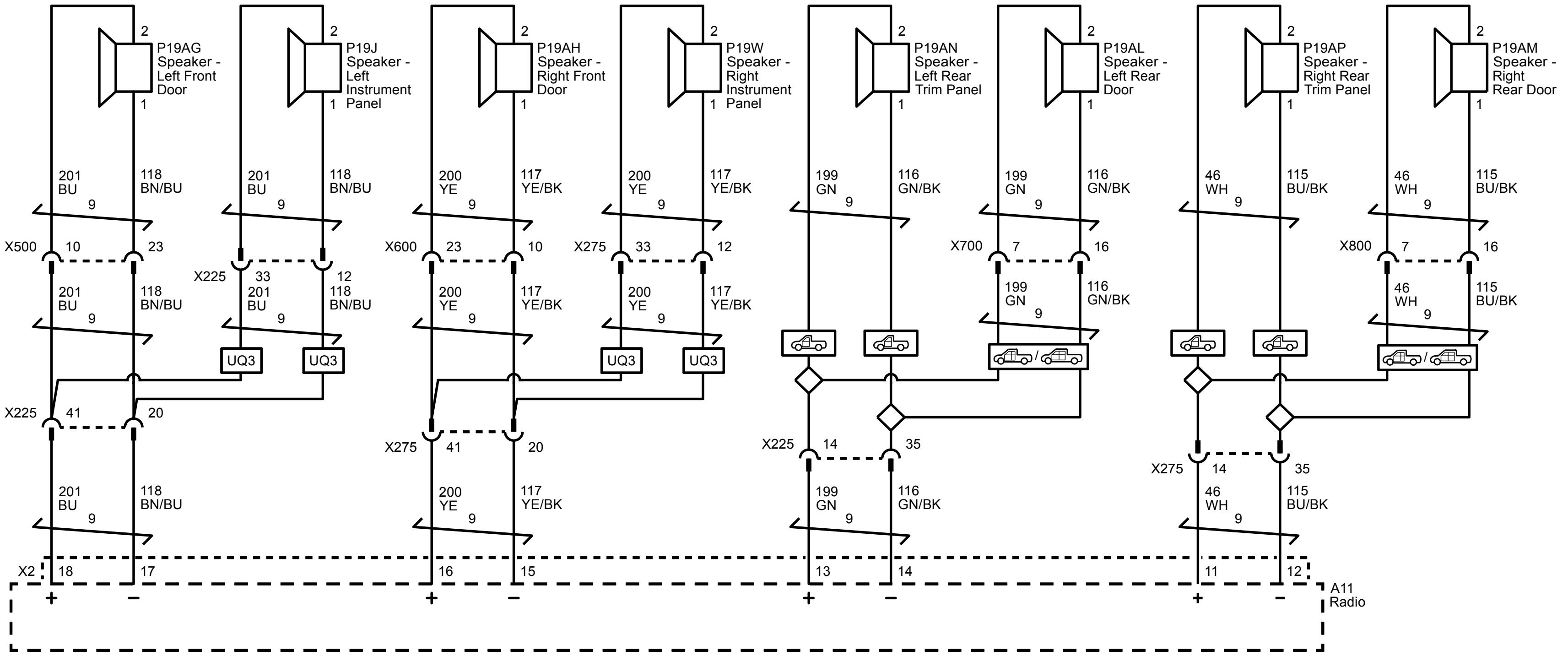
## Radio Power, Ground, Serial Data and Antenna

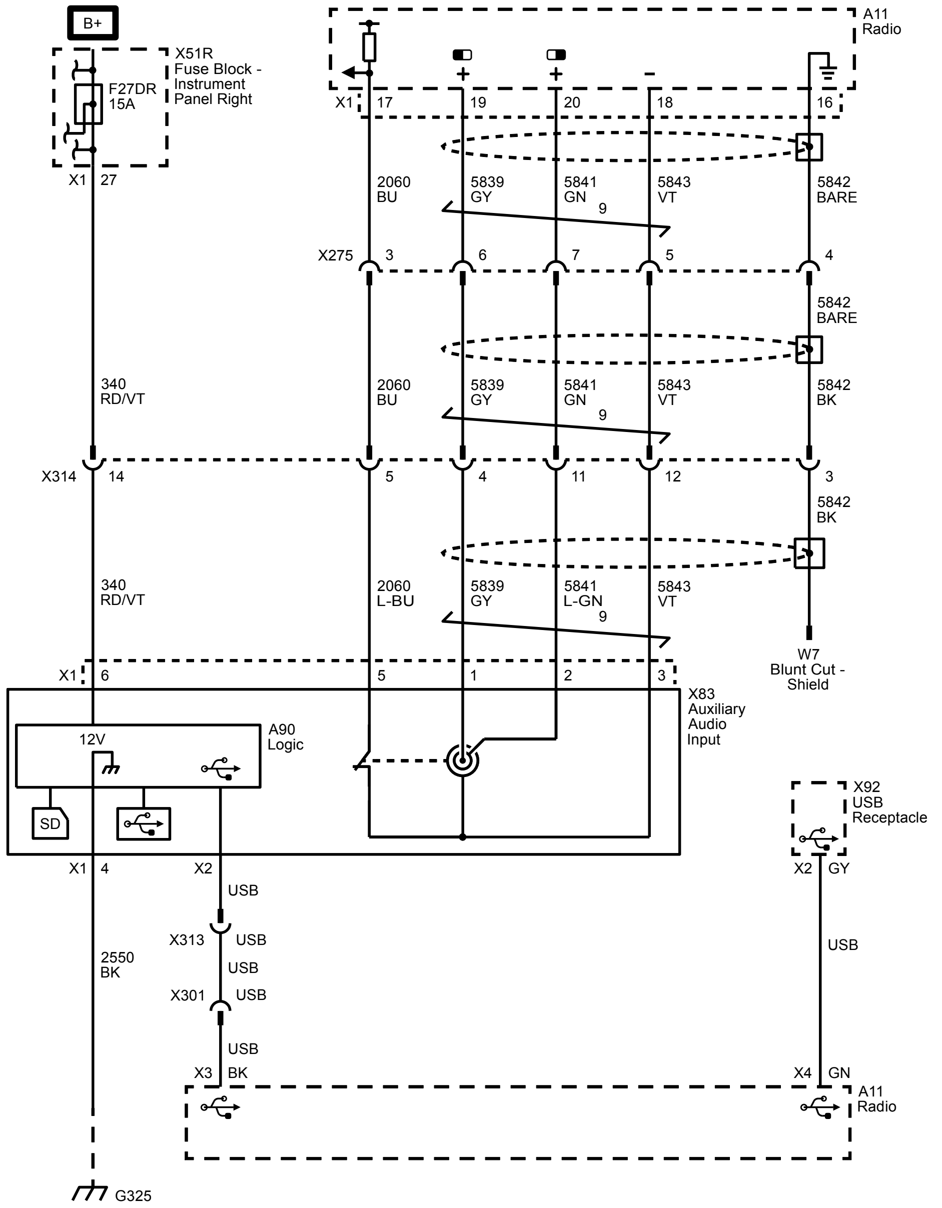

B+
X51R
Fuse Block -
Instrument
Panel Right
F44DR
15A
X2
42
B24
Cellular
Phone
Microphone
654
BK/BN
655
RD
A
B
654
BK/BN
655
BU
X305
3
4
T4M
Radio
Antenna
T4H
Digital
Radio
Antenna
1
COAX
COAX
Object
Detection
Schematics
Data
Communication
Schematics
654
BK/BN
655
BU
OnStar/
Telematics
Schematics
340
RD/VT
5149
GY/YE
5152
BK/GY
659
BK/YE
658
YE
16
X245
BK
X210
CU
J251
6973
WH/BU
6972
GY/YE
1102
GY/GN
-UE1
-UE1
UE1
UE1
UE1
UE1
340
RD/VT
U2K/U2M
340
RD/VT
X2
20
X1
11
14
15
4
6
7
9
10
X4
BK
X5
CU
A11
Radio
B+
B+
–
–
+
–
+
AM/FM
XM/HD
X1
1
X2
10
2550
BK
2550
BK
G325

# Media Disc Player Power, Ground and Serial Data (TG5)

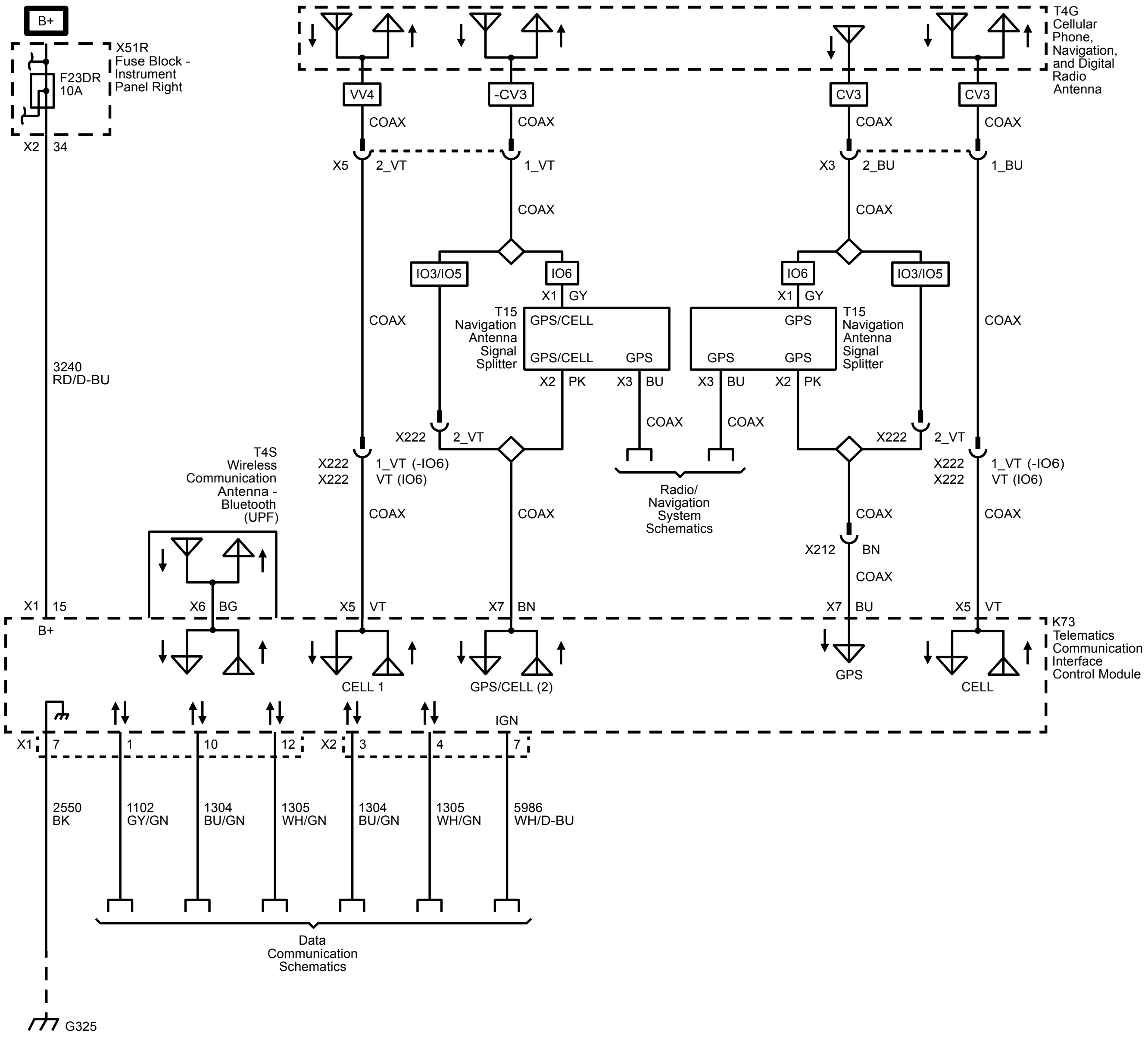

A11
Radio
–
+
5V
D
X2
9
8
3
X1
8
2
3
X2
5
4
6
7
X7
BK
4314
GY/BN
4315
BU
314
GY
3983
BN/L-GN
9003
GY/BN
9004
BN
3989
GY/BU
1381
VT/GY
4502
BN/GN
3364
BN/GN
LVDS
X1
8
1
6
5
7
2
X2
BK
P17
Info
Display
Module
5V
D
5V
X1
4
3
12
11
9
10
2515
GN/BK
3761
GY/BN
3989
GY/BU
2518
BK/BN
2550
BK
2550
BK
7
6
4
3
2
1
5
8
A22
Radio
Controls
–
+
5V
G325

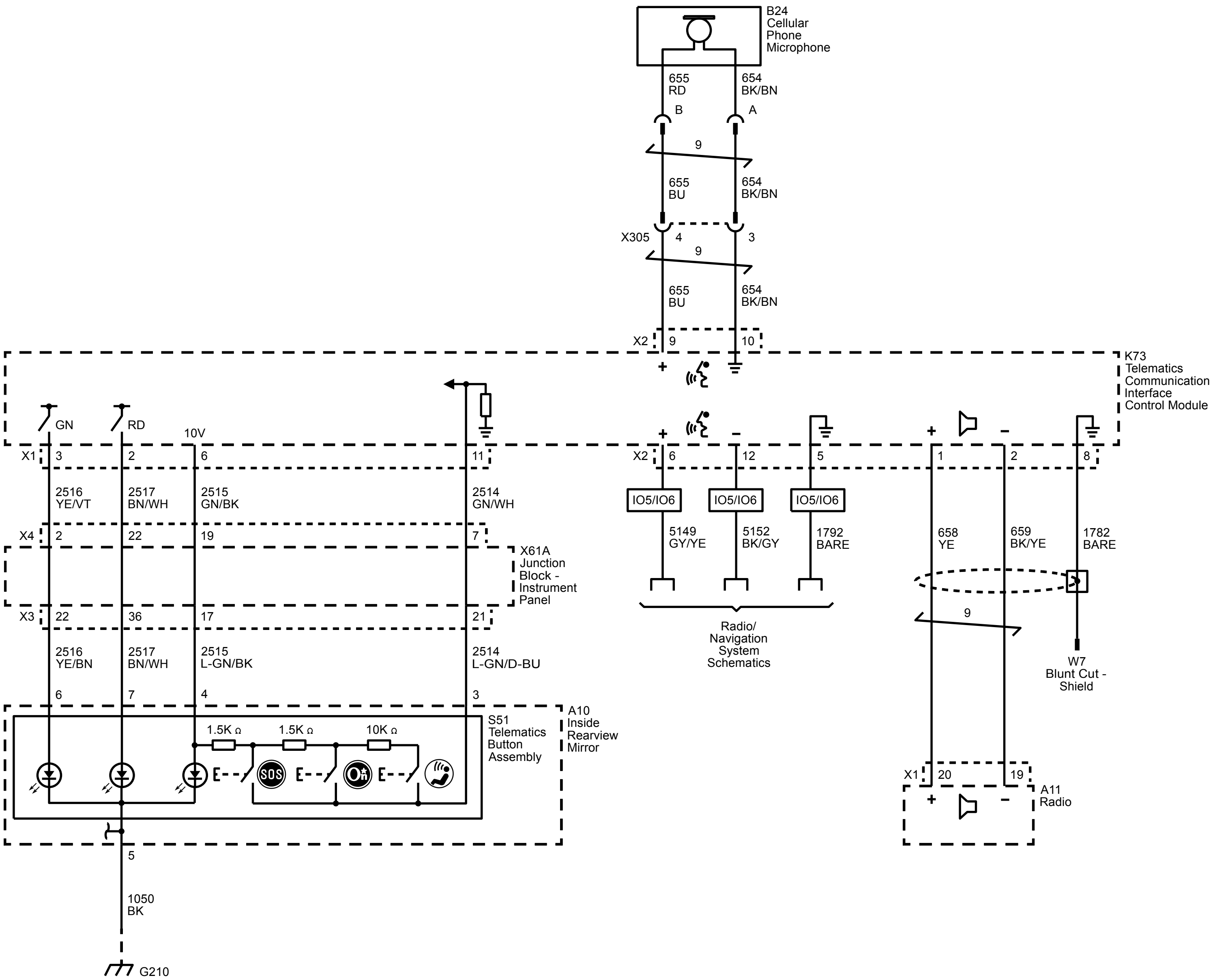
## Speakers (UQ3 or UQ5)


P19AG Speaker - Left Front Door
P19J Speaker - Left Instrument Panel
P19AH Speaker - Right Front Door
P19W Speaker - Right Instrument Panel
P19AN Speaker - Left Rear Trim Panel
P19AL Speaker - Left Rear Door
P19AP Speaker - Right Rear Trim Panel
P19AM Speaker - Right Rear Door
2
1
201 BU 9
118 BN/BU 9
200 YE 9
117 YE/BK 9
199 GN 9
116 GN/BK 9
46 WH 9
115 BU/BK 9
X500 10 23
X225 33 12
X600 23 10
X275 33 12
X700 7 16
X800 7 16
UQ3
X225 41 20
X275 41 20
X225 14 35
X275 14 35
X2 18 17 16 15 13 14 11 12
+ − + − + − + −
A11 Radio

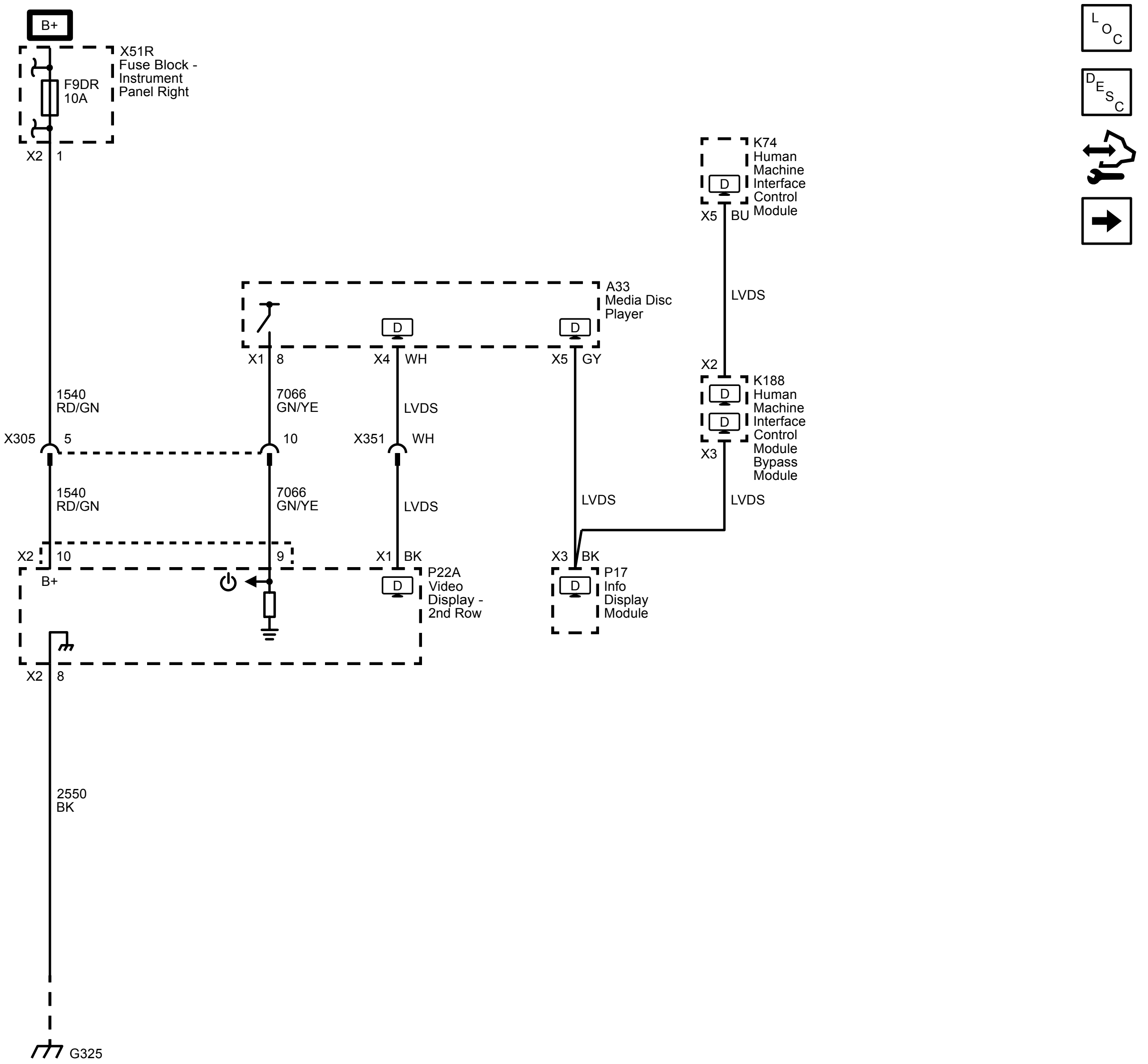

B+
X51R
Fuse Block - Instrument Panel Right
F27DR
15A
X1 27
A11
Radio
X1 17 19 20 18 16
2060
BU
5839
GY
5841
GN
5843
VT
9
5842
BARE
X275 3 6 7 5 4
5842
BARE
340
RD/VT
2060
BU
5839
GY
5841
GN
5843
VT
9
5842
BK
X314 14 5 4 11 12 3
5842
BK
340
RD/VT
2060
L-BU
5839
GY
5841
L-GN
5843
VT
9
W7
Blunt Cut - Shield
X1 6 5 1 2 3
X83
Auxiliary Audio Input
12V
A90
Logic
SD
X92
USB
Receptacle
X1 4
X2
USB
X2 GY
X313 USB
USB
X301 USB
USB
2550
BK
USB
X3 BK
X4 GN
A11
Radio
G325

## Power, Ground, Serial Data and Antennas (UE1)

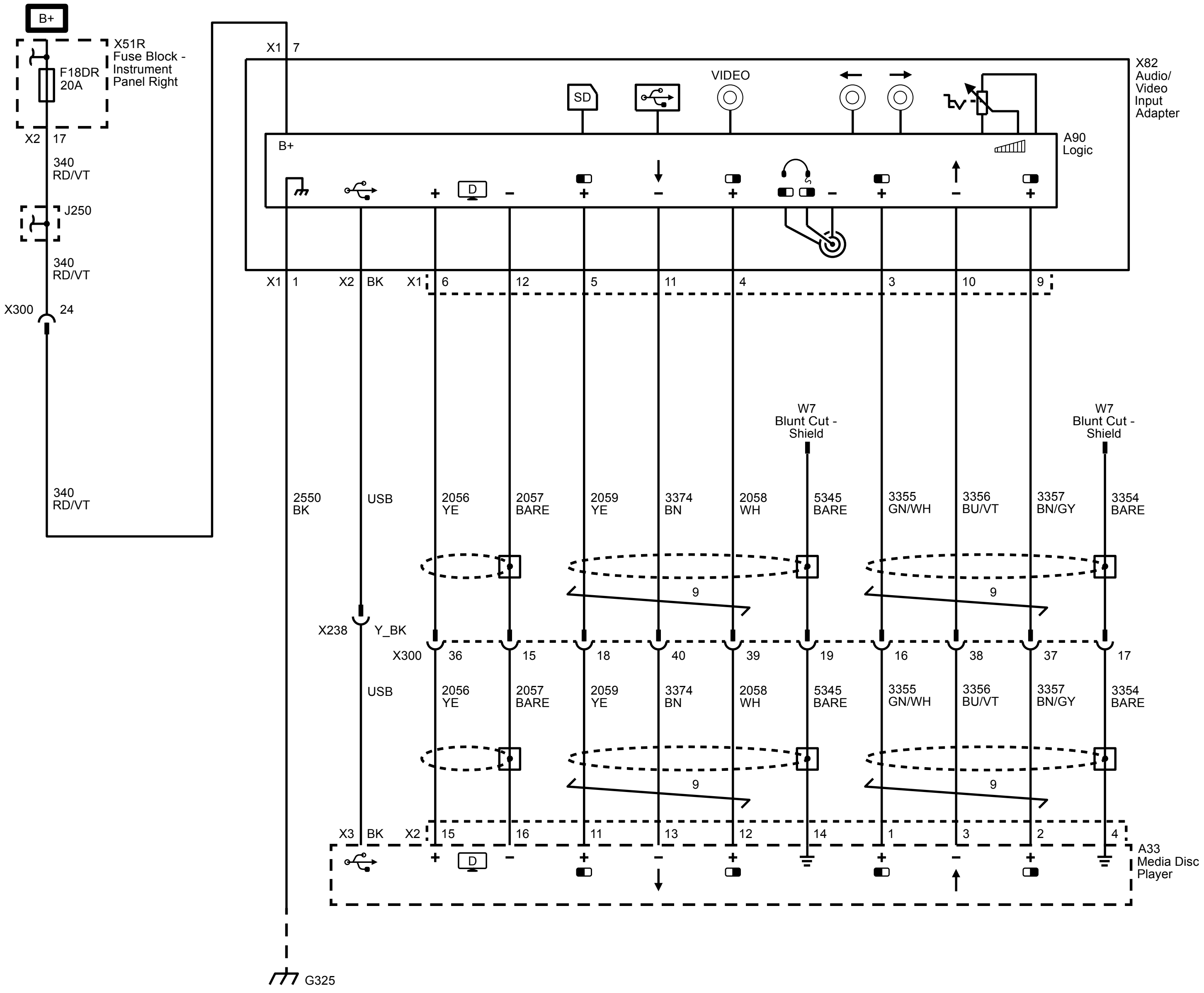

B+
X51R
Fuse Block - Instrument Panel Right
F23DR
10A
X2 34
3240
RD/D-BU
T4G
Cellular Phone, Navigation, and Digital Radio Antenna
VV4
-CV3
CV3
CV3
COAX
X5 2_VT
1_VT
X3 2_BU
1_BU
IO3/IO5
IO6
X1 GY
T15
Navigation Antenna Signal Splitter
GPS/CELL
GPS
X2 PK
X3 BU
X222 2_VT
X222 1_VT (-IO6)
X222 VT (IO6)
Radio/ Navigation System Schematics
X212 BN
T4S
Wireless Communication Antenna - Bluetooth (UPF)
X1 15
X6 BG
X5 VT
X7 BN
X7 BU
X5 VT
B+
CELL 1
GPS/CELL (2)
GPS
CELL
K73
Telematics Communication Interface Control Module
IGN
X1 7
1
10
12
X2 3
4
7
2550
BK
1102
GY/GN
1304
BU/GN
1305
WH/GN
1304
BU/GN
1305
WH/GN
5986
WH/D-BU
Data Communication Schematics
G325


B24 Cellular Phone Microphone
655 RD
654 BK/BN
B
A
9
655 BU
654 BK/BN
X305
4
3
9
655 BU
654 BK/BN
X2
9
10
K73 Telematics Communication Interface Control Module
GN
RD
10V
X1
3
2
6
11
X2
6
12
5
1
2
8
2516 YE/VT
2517 BN/WH
2515 GN/BK
2514 GN/WH
IO5/IO6
IO5/IO6
IO5/IO6
5149 GY/YE
5152 BK/GY
1792 BARE
658 YE
659 BK/YE
1782 BARE
X4
2
22
19
7
X61A Junction Block - Instrument Panel
X3
22
36
17
21
Radio/ Navigation System Schematics
9
W7 Blunt Cut - Shield
2516 YE/BN
2517 BN/WH
2515 L-GN/BK
2514 L-GN/D-BU
6
7
4
3
1.5K Ω
1.5K Ω
10K Ω
S51 Telematics Button Assembly
A10 Inside Rearview Mirror
SOS
X1
20
19
A11 Radio
5
1050 BK
G210

## Video Display - 2nd Row Power and Ground


B+
X51R
Fuse Block - Instrument Panel Right
F9DR
10A
X2 1
1540
RD/GN
X305 5
1540
RD/GN
X2 10
B+
X2 8
2550
BK
G325
A33
Media Disc Player
X1 8
7066
GN/YE
10
7066
GN/YE
9
X4 WH
LVDS
X351 WH
LVDS
X1 BK
P22A
Video Display - 2nd Row
X5 GY
LVDS
X3 BK
P17
Info Display Module
K74
Human Machine Interface Control Module
X5 BU
LVDS
X2
K188
Human Machine Interface Control Module Bypass Module
X3
LVDS
D
L O C
D E S C

## Video Inputs


B+
X51R
Fuse Block -
Instrument
Panel Right
F18DR
20A
X2 17
340
RD/VT
J250
340
RD/VT
X300 24
340
RD/VT
X1 7
X82
Audio/
Video
Input
Adapter
SD
VIDEO
A90
Logic
B+
D
X1 1
X2 BK
X1 6
12
5
11
4
3
10
9
W7
Blunt Cut -
Shield
W7
Blunt Cut -
Shield
2550
BK
USB
2056
YE
2057
BARE
2059
YE
3374
BN
2058
WH
5345
BARE
3355
GN/WH
3356
BU/VT
3357
BN/GY
3354
BARE
9
9
X238
Y_BK
X300 36
15
18
40
39
19
16
38
37
17
USB
2056
YE
2057
BARE
2059
YE
3374
BN
2058
WH
5345
BARE
3355
GN/WH
3356
BU/VT
3357
BN/GY
3354
BARE
9
9
X3 BK
X2 15
16
11
13
12
14
1
3
2
4
D
A33
Media Disc
Player
G325

# Description and Operation

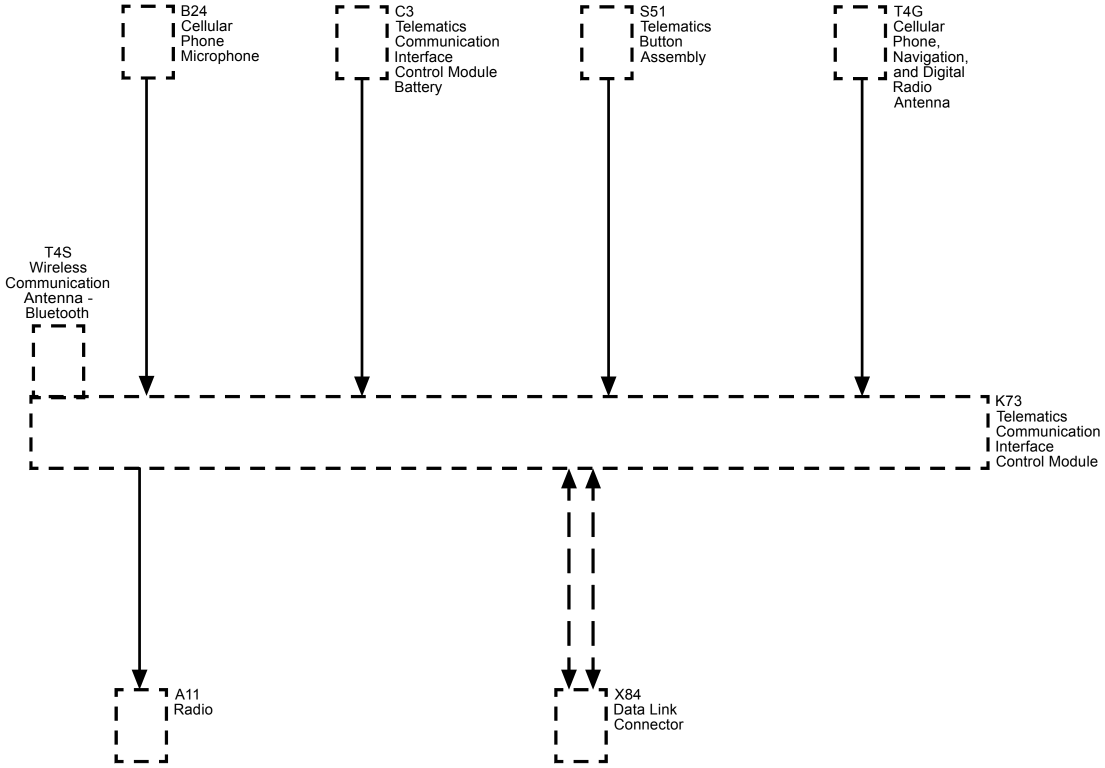
## OnStar Description and Operation

This OnStar® system consists of the following components:

- Telematics communication interface control module
- OnStar® three button assembly
- Microphone
- Cellular antenna
- Navigation antenna
- Bluetooth® antenna (If equipped)
- Back up battery (If equipped)
- WiFi Hotspot (If equipped)
- TTY (Teletypewriter)

This system also interfaces with the factory installed vehicle audio system.

### Onstar Block Diagram


B24 Cellular Phone Microphone
C3 Telematics Communication Interface Control Module Battery
S51 Telematics Button Assembly
T4G Cellular Phone, Navigation, and Digital Radio Antenna
T4S Wireless Communication Antenna - Bluetooth
K73 Telematics Communication Interface Control Module
A11 Radio
X84 Data Link Connector

### Telematics Communication Interface Control Module

The OnStar Generation 10 system uses Global System for Mobile Communication (GSM) to communicate data and voice signals over the national cellular network. The module may also have the ability to act as a Wireless Local Area Network (WLAN) Wi-Fi hotspot similar to a home wireless router. The module houses an internal WLAN antenna enabling hotspot connectivity and streaming high speed media to the entertainment system. The module also may enable Teletypewriter (TTY) and be capable of Bluetooth communication utilizing an internal antenna. The module is capable of up to 4G LTE speeds and houses 2 technology systems, one to process Global Positioning System (GPS) data, and another for cellular information. The module sends and receives all cellular communications over two cellular antennas and cellular antenna coax cables.

The OnStar Gen 10 system has two antenna inputs, a primary cellular signal and a combined GPS/secondary cellular signal. The OnStar® system uses the Unitied States Global Positioning System (GPS) signals to provide location on demand. GPS is a space-based satellite navigation system that provides location and time information in all weather conditions, anywhere on or near Earth where there is an unobstructed line of sight to four or more GPS satellites.

The module also has the capability of activating certain features such as, the horn, remote engine starting, initiating door lock/unlock, or activating the exterior lamps using the serial data circuits. These functions can be commanded by the OnStar® Call Center per a customer request or mobile device app depending on vehicle and customer subscription.

Dedicated circuits are used to connect the telematics communication interface control module to a microphone, the button assembly, radio, and if equipped the Back Up Battery (BUB). The telematics communication interface control module communicates with the rest of the vehicle over the serial data bus.

Power is provided by a dedicated, fused B+ circuit. Ground is provided through the vehicle wiring harness attached to the module. The power mode state is determined by the telematics communication interface control module through serial data messaging.

## OnStar® Three Button Assembly

- The OnStar® button assembly may be part of the rearview mirror, or a separate, stand alone unit. The button assembly is comprised of 3 buttons or 3 capacitive touch buttons and status LED’s or an error indicator. The buttons are defined as follows:
  - The answer/end button, which is black with a white phone icon or a white driver figure seated with voice signals near its face, allows the user to answer and end calls or initiate speech recognition.
  - The blue OnStar® call center button, which displays the OnStar® logo, allows the user to connect to the OnStar® call center.
  - The emergency button, which displays white letters “SOS” with red background, sends a high priority emergency call to the OnStar® call center when pressed.

If the LED does not illuminate, this may indicate that the customers OnStar® subscription is not active or has expired. Push the blue OnStar button to connect to an advisor who can then verify the account status.

The telematics communication interface control module supplies 10 volts to the OnStar® button assembly on the keypad supply voltage circuit. When pressed, each button completes a circuit across a resistor allowing a specific voltage to be returned to the telematics communication interface control module on the keypad signal circuit. Depending upon the voltage range returned the telematics communication interface control module is able to identify which button has been pressed.

The OnStar® status LED or error indicator is located near the buttons. The LED is green when the system is ON and operating normally. When any indicator is illuminated and flashing, it is an indication that a call is in progress. When the LED is red, this indicates a system malfunction is present. In the event there is a system malfunction and the OnStar® system is still able to make a call, the LED will flash red during the call.

Each LED or error indicator is controlled by either the telematics communication interface control module over dedicated LED signal circuits or by low speed GM LAN serial data depending on the inside rearview mirror option. Ground for the LED is provided by the wiring harness attached to the button assembly.

## Secondary OnStar® Controls

Some vehicles may have an additional button that when pushed can engage the OnStar® system. The button may be a symbol of a face with sound waves, or may say MUTE, or be a symbol of a radio speaker with a slash through it.

By engaging the OnStar® system with this feature, the user can interact with the system by use of voice commands. A complete list of these commands is supplied in the information provided to the customer. If the information is not available for reference, at any command prompt the user can say "HELP" and the telematics communication interface control module will return an audible list of available commands.

## OnStar® Microphone

The cellular microphone can be part of the rearview mirror assembly, or a stand-alone unit in the headliner or roof console. In either case, the telematics communication interface control module supplies approximately 10V to the microphone on the cellular microphone signal circuit. The microphone modifies the 10V depending on the volume and voice being detected. A cellular microphone low reference circuit or a drain wire provides a ground for the microphone. The microphone signal circuits pass through the telematics communication interface control module to support entertainment voice recognition.

## Cellular and GPS Antennas

The combination antenna will have any of the following antenna elements when equipped with OnStar:

- Primary cellular element
- Secondary cellular element
- GPS element
- Digital radio element
- AM/FM element

The Gen 10 OnStar® system uses 2 cellular antenna elements to send and receive cellular data, the primary cellular element and the secondary cellular element. The primary cellular signal is carried by a coax cable that connects the antenna directly to the telematics communication interface control module. Details of the secondary cellular signal are further described below.

The GPS antenna element is used to collect the signals of the orbiting GPS satellites. Within the antenna is housed a low noise amplifier that allows for a more broad and precise reception of this data. Also housed within the antenna is circuitry to combine the GPS signal and the secondary cellular signal. Without navigation, the combination GPS/secondary cellular signal is carried by a coax cable that connects directly to the telematics communication interface control module. The cable also provides a path for DC current for powering the antenna. With navigation, the combination GPS/secondary cellular signal is carried by a coax cable that connects to the navigation signal splitter. The splitter supplies the GPS signal to the navigation/entertainment system and the GPS/cellular signal to the telematics communication interface control module.

The digital radio element collects digital radio signals from two satellites and where necessary terrestrial repeaters. The digital radio signal is carried by a coax cable and connected to the digital radio receiver. Refer to Radio/Audio System Description and Operation for further details.

The radio signal is sent from a broadcast station and is then received by the AM/FM radio antenna element. The AM/FM radio signal is carried by a coax cable and is connected to the radio. Refer to Radio/Audio System Description and Operation for further details.

## OnStar® RemoteLink

OnStar® RemoteLink is a mobile app to link mobile devices to a vehicle for limited diagnostics and feature controls. After downloading the app and registering the device, vehicle owners with an eligible vehicle can use their mobile devices to access real-time data from their vehicle and perform specific commands remotely.

All communication between the app and the vehicle is powered by OnStar's® advanced connected vehicle technology. An active OnStar® account as well as a valid OnStar® username and password are required to use the app. The remote commands must be enabled by logging into the user’s OnStar® account prior to using the app. Refer to the owners manual for available vehicle data and control features.

### Compass Heading

The telematics communication interface module has a compass feature to calculate vehicle direction which is displayed via the instrument panel cluster or designated display. The compass heading is determined by dead reckoning until the GPS 3d fix is established. The dead reckoning is accomplished by using the yaw rate sensors and wheel ticks to determine heading changes from a GPS known heading. The GPS 3d fix heading is determined by the deferential of two locations. If “CAL” is displayed on the Instrument Panel Cluster or designated display refer to the owners manual for steps to calibrate the compass.

### Bluetooth® (If Equipped)

Bluetooth® wireless technology is a short-range communications technology intended to replace the cables connecting portable and/or fixed devices while maintaining high levels of security. Only vehicles with steering wheel controls will have Bluetooth® functionality. In order to utilize the vehicle’s Bluetooth® system, a Bluetooth® equipped cellular phone is required.

The Bluetooth® antenna is internal to the telematics communication interface control module, radio or human machine interface module and is used to send and receive signals from a Bluetooth® enabled cellular phone. The available features and functions are determined by the software within the device being used and the telematics communication interface control module. The operating range of the signal from the vehicle is approximately 30 feet. Note that the operating range is dependent upon the cellular phone being used and battery level of the phone.

With Bluetooth® technology customers can experience hands-free calling as their Bluetooth® capable cellular phones are wirelessly connected to the vehicle. It will allow customers to place and receive calls using the steering wheel controls and voice recognition. The vehicle audio system will allow you to listen to your call through the vehicle speakers and adjust volume through steering wheel or radio controls.

Not all Bluetooth® cellular phones are guaranteed to work with the vehicle’s Bluetooth® system. Based on the cellular phone’s service provider and the manufacturer’s implementation of Bluetooth®, not all phones support all available Bluetooth® functionality. Bluetooth® enabled cellular phones will be tested for vehicle compatibility and a feature compatibility list will be provided via the GM Bluetooth® website: http://www.gm.com/vc/bluetooth/

### Bluetooth® Features Supported

The following is a list of features supported by the Bluetooth® system. Note that not all devices will support all of the listed functions.

- Automatic reconnection – highest priority phone will automatically be connected to vehicle when vehicle ignition is on
- Hands-free dialing- via digits, redial, name tags (phone number saved to a nametag via voice recognition)
- Answering a call
- Ending a call
- Mute a Call
- Rejecting a call – ignore an incoming call
- Call Waiting
- Three-way Calling – initiated from hands-free system
- Send Number During a Call – this is used when calling a menu-driven phone system
- Transfer a Call – transfer call from vehicle to cellular phone and visa versa
- Voice Pass-Thru – allow access to the voice recognition commands on the cellular phone

### Pairing a Bluetooth® Cellular Phone to the Vehicle

In order to use hands-free calling, the cellular phone must be paired to the vehicle. Up to five devices can be paired to the vehicle at one time, but only one can be connected at any given time. To pair a phone, the customer must know how to operate the Bluetooth® functionality of their phone. The pairing process must only be done one time for each phone, unless that phone’s information is deleted. The system will always generate a password and will provide that password if the device you are pairing does not support Secure Simple Pairing (SSP). If the device being paired does support SSP the system will not provide the password and automatically pair the device. For safety reasons, the pairing process is disabled while the vehicle is moving.

Once the Bluetooth® cellular phone has been paired with vehicle, it will automatically connect to the vehicle when the ignition is on and the device is on. When more than one paired phone is in the vehicle, the phone with the highest priority will be connected. If the cellular phone is in use while getting into the vehicle, the phone can be switched to hands-free mode with the press of a button. In addition, a call in progress can be transferred from the vehicle hands-free mode to the phone to continue the call as the customer exits the vehicle.

Complete pairing instructions are provided in the Vehicle Owners Manual.

### Back-up Battery (If Equipped)

**Note:** Do not disconnect the main vehicle battery or remove the OnStar® fuse with the ignition key in any position other than OFF. Disconnecting power to the OnStar® module in any way while the ignition is ON or with retained accessory power activated may cause activation of the OnStar® Back-Up Battery. This action is per design as the back-up battery is designed to provide power to the telematics communication interface control module so an emergency notification call can be made after an event where the main battery is disabled. Once the Back-Up Battery is activated it will stay on until the power is restored back to the telematics communication interface control module. The telematics communication interface control module naturally chooses the main supply voltage as it’s default supply, but if the main supply is removed or lost for any reason the OnStar® module will use the Back-Up Battery as a power supply as long as the default supply can not be detected. The back-up battery is not rechargeable and once discharged below 9.5 volts the back-up battery must be replaced.

Certain OnStar® equipped vehicles may also be equipped with a back-up battery. The back-up battery is a non-rechargeable, lithium battery intended to provide an auxiliary power source for the telematics communication interface control module in the event where power from the main vehicle battery is lost.

The back-up battery is intended to have a limited life span of approximately 4 years and is designed to maintain an open circuit voltage between 16 V and 9 V throughout this period. This allows the battery to power the basic functions of the telematics communication interface control module for least one 200 second (5 minute) call at the end of the 4 year span, should the main vehicle battery be lost. In the case of a vehicle losing vehicle battery power, OnStar will switch over to the backup battery based on an internal algorithm. It will look for an air-bag deploy, or near-deploy, messages from the SDM. If there are no messages the OnStar module will stay wake for a few minutes longer and monitor the buttons in the mirror. If not pressed, the modules will power down and shut off completely.

The back-up battery is connected to the telematics communication interface control module through the back-up battery positive voltage circuit and back-up battery ground circuit and is protected from a short circuit by means of an internal fuse. In the event the back-up battery, battery positive voltage circuit is shorted to the back-up battery ground circuit or chassis ground, the fuse will open and render the back-up battery permanently inoperable. The status of the back-up battery and its associated wiring is monitored by the telematics communication interface control module.

### WiFi Hotspot

The telematics communication interface control module acts as a Wireless Local Area Network (WLAN) WiFi hotspot router and uses direct 4G LTE connectivity to the internet. It has the ability to connect up to 7 devices at one time. A data plan is required and when purchased, a security default password is established. There are several ways to change the SSID or password, by placing a call to the OnStar Call Center, by using the Gen 10 mobile app or through the scan tool.

The system utilizes a secure autoconnect feature between the telematics communication interface control module and the radio/HMI. No user interaction is required, it is always available and ready to connect to a dedicated in car device. The ignition must be in Run, Accessory or RAP for WiFi to operate.

### Audio System Interface

When the OnStar® requires audio output, a serial data message is sent to the audio system to mute all radio functions and transmit OnStar® originated audio. The OnStar® audio is transmitted to the vehicle audio system by a dedicated signal circuit and a low reference circuit.

The audio system will mute and an audible ring will be heard though the speakers if the vehicle receives a call with the radio ON.

On some vehicles, the HVAC blower speed may be reduced when the OnStar® system is active to aid in reducing interior noise. When the system is no longer active, the blower speed will return to its previous setting.

### OnStar® Sleep Cycle

The OnStar® system uses a unique sleep cycle to allow the system to receive cellular calls while the ignition is in the OFF position and retained accessory power mode has ended. This cycle enables the telematics communication interface control module to perform remote functions, such as door unlock, as commanded over the air by the OnStar® Call Center, and to continue to maintain an acceptable level of battery electrical drain.

The OnStar® system uses 4 states of readiness, depending upon the type of cellular market the vehicle is in when the ignition is put into the OFF state:

- High power
- Low power
- Sleep
- Digital standby

The high power state is in effect whenever the ignition is in the ON or RUN position, or retained accessory power is enabled, and the OnStar® system is sending or receiving calls or when the system is performing a remote function.

The low power state is in effect when the OnStar® system is idle with the ignition in the ON or RUN position, or with retained accessory power enabled.

The sleep state is entered after the vehicle has been shut off and the retained accessory power has timed out while in an analog cellular area. At a predetermined time recorded within the telematics communication interface control module, the system re-enters the low power state to listen for a call from the OnStar® Call Center for 1 minute. After this interval, the system will again return to the sleep state for 9 minutes. If a call is sent during the 1 minute interval, the OnStar® system will receive the call and immediately go into the high power mode to perform any requested functions. If no call is received during the 1 minute interval, the system will go back into the sleep mode for another 9 minutes. This process will continue for up to 48 hours, after which the OnStar® system will turn off until the ignition is turned to the ON or RUN position.

The digital standby power state is entered after the vehicle has been shut off and the retained accessory power has timed out while in a digital cellular area. When in digital standby mode, the OnStar® module is able to perform all remote functions as commanded by an OnStar® advisor at any time, for a continuous 120 hours. After 120 hours, the OnStar® module will go into sleep mode until a wake up signal from the vehicle is seen by the telematics communication interface control module. If the OnStar module loses the digital cellular signal it will revert to analog mode and follow the standard sleep state (9 minutes OFF, 1 minute standby) based on the time of the GPS signals, this will continue until a digital cellular signal is again received.

If the OnStar® system loses battery power while the system is in a standby or sleep mode, the system will remain OFF until battery power is restored and the ignition is turned to the ON or RUN position.

### Features

#### OnStar® Personal Calling

The hands free, OnStar® personal calling cellular phone feature is an additional feature of the OnStar® system. This feature is embedded within the telematics communication interface control module; however it must be activated by an OnStar® advisor. OnStar® personal calling operates similar to most hand held cellular phones in that the availability for its usage is based on minutes or units. The customer must have a current OnStar® subscription, as this feature cannot be utilized without it. To use OnStar® personal calling, the customer must also purchase units (minutes) as outlined in the owners guide provided with the OnStar® system. Units begin to deplete, 1 unit is equal to 1 minute, as the customer makes outbound phone calls, answers inbound phone calls, or while connected to the OnStar® virtual advisor. In addition, units may also have an expiration date, depending upon the type of units purchased.

Customers have the ability to store telephone numbers within the module, referenced by a nametag for the convenience of frequently dialed numbers. After storing a nametag, the user can dial this number by initiating the OnStar® personal calling feature, speaking the word "call," and repeating the nametag assigned.

#### Turn by Turn Navigation

Turn by Turn Navigation allows the driver to contact OnStar® to obtain directions for driving from a current location to a desired location. The Turn by Turn Navigation system stores your planned route and continually checks your position along that route, when you deviate from the planned route, the system will recognize this and prompt the driver with verbal prompts for how to proceed. The driver then responds verbally to direct the system to continue the current routing or to recalculate the route because of a missed turn.

#### Advisor Record Feature

The Advisor Record Feature allows the user to store any information given during a call with an OnStar® Advisor. Recording is activated by pressing the blue OnStar button during a call; pressing the button a second time stops the recording. The stored information can be played back by pressing the phone button on the three button assembly and using the voice command “Advisor Playback”.

### Teletypewriter (TTY) Users

OnStar has the ability to communicate to deaf, hard-of-hearing, or speech-impaired customers while in the vehicle. The available dealer-installed TTY system can provide in-vehicle access to all of the OnStar services, except Virtual Advisor and OnStar Turn-by-Turn Navigation.

### Deactivated OnStar® Accounts

In the event a customer has not renewed their OnStar® account after expiration or the account was never activated, OnStar® will make a discrete cellular call to the vehicle to deactivate the OnStar® system. Before taking this action, customers are notified that the OnStar® system in their vehicle will be deactivated unless they elect to renew the account. After the OnStar® account has been deactivated, customers will experience the following:

- The OnStar® status LED will not illuminate.
- The OnStar® system will NOT attempt to connect to the OnStar® Call Center in the event of a collision or if the vehicle's front air bags deploy for any other reason.
- An emergency button press will play a demo message indicating the service has been deactivated.
- An OnStar® Call Center button press will connect the customer with a dedicated sales team who can sell an OnStar® subscription and reactivate the vehicle. Depending on the type of OnStar® hardware in the vehicle,

the customer may first hear a demonstration message stating there is no current OnStar® subscription for the vehicle, and directing the customer what to do to activate services.

- OnStar® personal calling will not be available, as this feature requires the customer to have a current OnStar® account. Attempts to use this feature may result in cellular connection failure messages and the inability to connect to the number dialed.

Certain vehicles that have never had an active OnStar® account, or that have been deactivated, may be unable to establish a connection with the OnStar® Call Center. When normal published diagnostic procedures do not indicate a possible cause for the no connect concern, the vehicle may have been deactivated. For deactivated vehicles, a no connect response should be considered normal operation. Further diagnosis and subsequent repair is only necessary should the customer elect to become an active OnStar® subscriber or renew the account subscription.

### OnStar® Cellular, GPS, and Diagnostic Limitations

The proper operation of the OnStar® System is dependent on several elements outside the components integrated into the vehicle. These include the National Cellular Network Infrastructure, the cellular telephone carriers within the network, and the GPS.

The cellular operation of the OnStar® system may be inhibited by factors such as the users range from an analog or digital cellular tower, the state of the cellular carrier’s equipment, and the location where the call is placed. Making an OnStar® key press in areas that lack sufficient cellular coverage or have a temporary equipment failure will result in either the inability of a call to complete with a data transfer or the complete inability to connect to the OnStar® Call Center. The OnStar® system may also experience connection issues if the identification numbers for the module, station identification number, electronic serial number or manufacturers electronic ID, are not recognized by the cellular carriers local signal receiving towers.

The satellites that orbit earth providing the OnStar system with GPS data have almost no failures associated with them. In the event of a no GPS concern, the failure will likely lie with the inability of the system to gain GPS signals because of its location, i.e. in a parking structure, hardware failure, or being mistaken with an OnStar® call which has reached the Call Center without vehicle data.

During diagnostic testing of the OnStar® system, the technician should ensure the vehicle is located in an area that has a clear unobstructed view of the open sky, and preferably, an area where analog or digital cellular calls have been successfully placed. These areas can be found by successfully making an OnStar® keypress in a known good OnStar® equipped vehicle and confirming success with the OnStar® Call Center advisor. Such places can be used as a permanent reference for future OnStar® testing.

### Mobile Identification Number and Mobile Directory Number

The telematics communication interface control module utilizes 2 numbers for cellular device identification, call routing and connection, a mobile identification number and a mobile directory number. The mobile identification number represents the number used by the cellular carrier for call routing purposes while the mobile directory number represents the number dialed to reach the cellular device.

### Operation of the OnStar® Speech Recognition Systems

OnStar® users communicate with 2 speech recognition systems. Speech recognition allows the user to speak to one computer in the vehicle, and one reached over a phone line. The computer tries to understand the users command, and responds by speaking back, or by taking the appropriate action, e.g. dialing the phone.

- Personal Calling uses a speech recognition system that resides in the vehicle. When the user presses the phone button, the system states, Ready, and listens for the user's command. The user can speak commands to control the hands-free phone.
- Virtual advisor is a remote speech recognition system that the caller can access by making a phone call. The user connects to virtual advisor by requesting it during personal calling use. The user is then transferred to the virtual advisor server and talks to it via a cellular connection.

The OnStar® speech recognition systems use speech technology that is designed to understand a wide range of American English speakers. Although there is no one right way to speak English, the system will work best when users try to modify their pronunciation should they encounter difficulty. Users who do not obtain good results are advised to try the tips and workarounds found in the Infotainment System Manual or the Owners Manual.

## Radio/Audio System Description and Operation (IO3)

The entertainment system on this vehicle may have several different configurations available to it. To determine the specific configuration of the vehicle, please see the Service Parts ID Label, and refer to RPO Code List.

Each item in the list below represents topics covered in detail below.

- Data Communications
- Remote Radio Receiver
- Media Disc Player
- Audio Amplifier (If equipped)
- Speaker Operation
- Infotainment Controls and Display
- Antenna System
- Radio Reception
- Theft Deterrent
- Auxiliary Audio Input Jack
- USB Port and SD Card Reader
- Valet Mode
- OnStar ®
- Steering Wheel Controls (If equipped)
- Auto Volume Control

### Data Communications

The infotainment system communicates with other devices on multiple serial data networks during operation. The infotainment system utilizes the Media Oriented Systems Transport (MOST) bus, Local Interconnect Network (LIN) and GMLAN to establish communications. For additional information refer to Data Link Communications Description and Operation

### Remote Radio Receiver

The radio is the MOST BUS master. The radio also communicates with other components and systems within the vehicle via GMLAN.

The remote radio receiver is responsible for receiving all broadcast audio bands. Broadcast signals from AM, FM, and XM bands are transmitted to the radio via the vehicle antenna systems.

#### Radio Power

The radio receives battery power and ground from the vehicle harness.

The radio does not use a discrete ignition feed circuit for power moding. The power mode master provides the system power mode to the radio via serial data messages. The power mode master determines the system power mode by processing power mode information from ignition switch inputs. Serial data power modes supported by the radio are OFF, ACCESSORY, RUN, and CRANK REQUEST.

#### Radio Audio Outputs

When not equipped with an amplifier, the radio outputs all audio signals to the speakers via the vehicle wiring harness.

When equipped with an amplifier, the radio outputs all audio signals digitally over the MOST bus.

### Media Disc Player

The media disc player is responsible for playing optical media for the infotainment system.

The media disc player receives control information and outputs digital audio over the MOST bus.

The media disc player receives battery power and ground from the vehicle harness.

### Audio Amplifier (If equipped)

#### Amplifier Interface

A fused battery voltage circuit provides the main amplifier power. The audio amplifier is a participant on the MOST network. The audio amplifier receives audio signals and control information from the MOST bus. The audio amplifier also communicates with other components and systems within the vehicle via GMLAN.

#### Amplifier Operation

The purpose of the amplifier is to increase the power of a voltage or current signal. The output signal of an amplifier may consist of the same frequencies as the input signal or it may consist of only a portion of the frequencies as in the case of a subwoofer or midrange speaker. The audio amplifier amplifies the signal and sends it to the appropriate speakers.

Each of the audio output channel circuits (+) and (−), at the audio amplifier have a DC bias voltage that is approximately one half of the battery voltage. When using a DMM, each of the audio output channel circuits will measure approximately 6.5V DC. The audio being played on the system is produced by a varying AC voltage that is centered around the DC bias voltage on the same circuit. The AC voltage is what causes the speaker cone to move and produce sound. Both the DC bias voltage and the AC voltage signals are needed for the audio system to properly produce sound.

The audio amplifier is also responsible for operation of active noise cancellation. Refer to CELL Link Error - Link target cell (cell ID 194567) is invalid for this publication. for more information.

### Speaker Operation

Speakers turn electrical energy into mechanical energy to move air, using a permanent magnet and an electromagnet. The electromagnet is energized when the radio or amplifier (if equipped) delivers current to the voice coil on the speaker. The voice coil will form a north and south pole that will cause the voice coil and the speaker cone to move in relation to the permanent magnet. The current delivered to the speaker is rapidly changing alternating current (A/C). This causes the speaker cone to move in two directions producing sound.

## Infotainment Controls and Display

The infotainment display and controls are a separate component from the radio, combined into an assembly. The assembly contains the control knobs and buttons for all audio and HVAC functions and the information display. The assembly is supplied battery voltage and ground from the vehicle harness.

The radio communicates with the assembly via a LIN serial data circuit. Messages communicated include the following:

- Wake-up/power state messages
- Diagnostic information
- Button presses/knob rotations
- Commands for the state of indicators
- Back-lighting dimming level

The radio sends the display digital video data for on-screen display through a dedicated video cable.

HVAC data for controls and status indicators is communicated between the HVAC controls and the HVAC control module with a separate LIN serial data circuit. HVAC status screen information from the HVAC control module is transmitted to the radio on the GMLAN serial data circuit.

## Antenna System

### Mast Antenna

The mast antenna is responsible for AM and FM radio reception. The antenna is attached to a base. The coaxial cable is connected to the base, and this cable is connected to the radio.

### Multi-Band Antenna

The multi-band antenna is located on the roof of the vehicle. This type of antenna may be used with the AM/FM radio, but is primarily for cellular, GPS signals, and XM signals, if the vehicle has these features. Keep this antenna clear of snow and ice build up for clear reception. If the vehicle has a sunroof, the performance of the system may be affected if the sunroof is open. Loading items onto the roof of the vehicle can interfere with the performance of the system, ensure the multi-band antenna is not obstructed.

## Radio Reception

### AM/FM Radio Signal

The radio signal is sent from a broadcast station and is then received by an antenna. The strength of the signal received depends on the following:

- The power output (wattage) of the broadcasting station
- The location of the vehicle (or receiver) relative to the broadcast tower.
- Height of the broadcast antenna
- Height of the receiving antenna
- Obstacles between the tower and the receiver
- Atmospheric conditions
- What band (AM or FM) the station is broadcasting
- Type of antenna and the ground plane

### Digital Radio Receiver (If equipped)

The XM satellite receiver is integrated into the radio. XM satellite radio provides digital radio reception. The XM signal is broadcast from two satellites and, where necessary, terrestrial repeaters. The high power satellites allow the antenna to receive the XM signal even when foliage and other partial obstructions block the antennas view of the satellite. Terrestrial repeaters are used in dense urban areas. These repeaters will receive the satellite signal and re-broadcast them at much higher power levels in order to ensure reception in areas with densely packed tall buildings. A service fee is required in order to receive the XM service.

### Radio Data System (RDS)

The RDS feature is available only on FM stations that broadcast RDS information. This system relies upon receiving specific information from these stations and only works when the information is available. While the radio is tuned to an FM-RDS station, the station name or call letters display. RDS data is carried in what is known as a "subcarrier". A subcarrier is a frequency that the FM broadcaster is authorized to use to send data that is not audible in the main audio program.

RDS functions will only work with FM broadcast stations that are broadcasting RDS data. Not all FM Broadcast stations broadcast RDS data or offer all of the RDS services.

The information displayed is dependent upon the information broadcast by the particular station. The information may vary greatly between stations. RDS functions may not work properly when reception is weak, reception is of poor quality, or RDS is not implemented properly by the FM Broadcaster. In some cases, a radio station broadcasting incorrect information may cause the RDS features of the radio to appear to work improperly.

With RDS, the radio can do the following:

- Display text information such as: station identification, type of programming, and general information (artist and song title, station messages, call in phone numbers, etc.).
- Seek to stations broadcasting the selected type of programming
- Receive announcements concerning local and national emergencies
- Receive alert warnings of local or national emergencies. When an alert announcement comes on the current radio station, ALERT! displays. You will hear the announcement, even if the volume is low or a CD is playing. If a CD is playing, play stops during the announcement. Alert announcements cannot be turned off. ALERT! is not affected by tests of the emergency broadcast system. This feature is not supported by all RDS stations.

## Theft Deterrent

The radio theft deterrent system is intended to disable or limit radio functionality if incorrect vehicle information is received by the radio. The radio disables functionality if the VIN information received by the radio does not match the VIN information that has been learned by the radio. The radio receives this information via serial data. A possible cause of incorrect VIN info could be the radio was originally installed in another vehicle.

The radio has the following theft operating modes as part of the theft deterrent system:

- Normal Mode: The radio has learned a correct VIN sequence and the VIN information received via serial data matches the learned VIN sequence. In this mode the radio has full functionality.
- No VIN Mode: The radio has not received or learned a correct VIN sequence. In this mode the radio has limited functionality.
- Theft Detected Mode: The radio has learned a correct VIN sequence and the VIN information received via serial data does NOT match the learned VIN sequence. In this mode the radio may be disabled or have limited functionality. The radio display will indicate that theft protection is active.

## Auxiliary Audio Input Jack (If equipped)

The infotainment system may have a 3.5mm (1/8 in.) auxiliary audio input jack located in the center console. The auxiliary audio input jack interfaces directly with the radio. When a portable audio playback device is connected to the auxiliary jack, an internal switch detects the connection and the radio will switch to AUX as the audio source. Audio signals from the device are sent to the radio from the auxiliary jack via the left, right, and common audio signal circuits.

- When a device is first connected to the 3.5mm (1/8 in.) input jack the infotainment system automatically switches to that device. If an auxiliary device has already been connected, press the AUX or CD/AUX button to select the device.
- Playback of an audio device that is connected to the 3.5mm jack can only be controlled using the controls on the device.
- The volume control on the device may need to be adjusted to ensure sufficient playback volume through the infotainment system.

## USB Port and SD Card Reader

The USB port and the card reader slot interface with a hub device, internal to the auxiliary jack, USB, and memory card receptacle assembly. The auxiliary jack, USB, and memory card receptacle assembly receives fused battery voltage and ground from the harness to power the internal hub device as well as providing additional amperage to power USB devices.

The internal hub device interfaces directly with the radio via a standard USB cable. A Mini type USB connector is used to connect the cable at the USB port and at the radio and at the auxiliary jack, USB, and memory card receptacle. Standard USB male to female connections are typically used for connecting USB cables together where an in-line connection is required. An in-line cable connection is typically found between the console and I/P harness.

### USB Port

The USB port allows connectivity to the infotainment system from portable media players or a USB storage device (memory stick/ flash drive). When a device is connected to the USB port, the system detects the device and switches to USB as the audio source. Once connected, the device can be controlled from the radio controls.

Not all portable media player devices or file types are compatible. Connection to USB HUB devices is not supported.

Refer to the owner’s manual for information on USB devices, control, and operation.

### SD Card Reader

The infotainment system uses the SD card reader as a mass storage device, similar to a USB storage device.

Refer to the owners manual for information on media types supported via the SD card reader.

## Valet Mode

Valet Mode is a customer enabled feature of the infotainment system, found in the settings menu, if equipped. The customer creates and inputs a four digit code using the infotainment controls. Confirming the code and selecting LOCK will lock the infotainment system, steering wheel controls and other vehicle features, dependant on vehicle equipment. The vehicle will remain in valet mode until the same four digit code is reentered.

In the event that the four digit code is forgotten, the scan tool can be used to clear the Valet Mode Code.

## OnStar ® (If equipped)

When OnStar is activated, a serial data message is sent to the radio that activates a software program. When the software begins its process, the fade goes to the front, Bass and Treble are set to the mid range, the outputs are mono, and the audio source is OnStar. OnStar takes priority over any other audio source. All of these actions are preset values stored in the radio.

For additional OnStar information, refer to OnStar Description and Operation.

## Steering Wheel Controls (If equipped)

Some audio functions are available using the steering wheel controls. The steering wheel controls duplicate the function of the primary controls available on the radio.

For additional information on steering wheel controls, refer to Steering Wheel Controls Description and Operation.

## Auto Volume Control

With auto volume control, the audio system will adjust automatically to make up for road and wind noise as you drive, by increasing the volume as vehicle speed increases. To use auto volume control, set the volume at the desired level, and then select either Low, Medium, or High. To turn auto volume control off, select the Off screen button.

## Radio/Audio System Description and Operation (IO5/IO6)

The entertainment system on this vehicle may have several different configurations available to it. To determine the specific configuration of the vehicle, please see the Service Parts ID Label, and refer to RPO Code List.

Each item in the list below represents topics covered in detail below.

- Data Communications
- Remote Radio Receiver
- Human Machine Interface Module
- Media Disc Player
- Audio Amplifier (If equipped)
- Speaker Operation
- Infotainment Controls and Display
- Antenna System
- Radio Reception
- Theft Deterrent
- Bluetooth ® (if equipped)
- Applications (if equipped)
- Auxiliary Audio Input Jack
- USB Port and SD Card Reader
- Navigation System Components and Features (if equipped)
- Valet Mode
- OnStar ®
- Steering Wheel Controls (If equipped)
- Auto Volume Control

### Data Communications

The infotainment system communicates with other devices on multiple serial data networks during operation. The infotainment system utilizes the Media Oriented Systems Transport (MOST) bus, Local Interconnect Network (LIN) and GMLAN to establish communications. For additional information refer to Data Link Communications Description and Operation

### Remote Radio Receiver

The radio is the MOST BUS master. The radio also communicates with other components and systems within the vehicle via GMLAN.

The remote radio receiver is responsible for receiving all broadcast audio bands. Broadcast signals from AM, FM, and XM bands are transmitted to the radio via the vehicle antenna systems.

#### Radio Power

The radio receives battery power and ground from the vehicle harness.

The radio does not use a discrete ignition feed circuit for power moding. The power mode master provides the system power mode to the radio via serial data messages. The power mode master determines the system power mode by processing power mode information from ignition switch inputs. Serial data power modes supported by the radio are OFF, ACCESSORY, RUN, and CRANK REQUEST.

#### Radio Audio Outputs

When not equipped with an amplifier, the radio outputs all audio signals to the speakers via the vehicle wiring harness.

When equipped with an amplifier, the radio outputs all audio signals digitally over the MOST bus.

### Human Machine Interface Module

The human machine interface module is responsible for the following: Video for the infotainment display, Bluetooth ®, USB, memory card reader, and speech recognition functions.

The human machine interface module communicates with the info display module via the LIN bus for control information, touch communications and dimming level. Digital video data is sent to the display through a dedicated video cable.

### Media Disc Player

The media disc player is responsible for playing optical media for the infotainment system.

The media disc player receives control information and outputs digital audio over the MOST bus.

The media disc player receives battery power and ground from the vehicle harness.

### Audio Amplifier (If equipped)

#### Amplifier Interface

The amplifier receives battery power and ground from the vehicle harness. . The audio amplifier is a participant on the MOST network. The audio amplifier receives audio signals and control information from the MOST bus.

### Amplifier Operation

The purpose of the amplifier is to increase the power of a voltage or current signal. The output signal of an amplifier may consist of the same frequencies as the input signal or it may consist of only a portion of the frequencies as in the case of a subwoofer or midrange speaker. The audio amplifier amplifies the signal and sends it to the appropriate speakers.

Each of the audio output channel circuits (+) and (−), at the audio amplifier have a DC bias voltage that is approximately one half of the battery voltage. When using a DMM, each of the audio output channel circuits will measure approximately 6.5V DC. The audio being played on the system is produced by a varying AC voltage that is centered around the DC bias voltage on the same circuit. The AC voltage is what causes the speaker cone to move and produce sound. Both the DC bias voltage and the AC voltage signals are needed for the audio system to properly produce sound.

The audio amplifier is also responsible for operation of active noise cancellation. Refer to CELL Link Error - Link target cell (cell ID 194567) is invalid for this publication. for more information.

## Speaker Operation

Speakers turn electrical energy into mechanical energy to move air, using a permanent magnet and an electromagnet. The electromagnet is energized when the radio or amplifier (if equipped) delivers current to the voice coil on the speaker. The voice coil will form a north and south pole that will cause the voice coil and the speaker cone to move in relation to the permanent magnet. The current delivered to the speaker is rapidly changing alternating current (A/C). This causes the speaker cone to move in two directions producing sound.

## Infotainment Controls and Display

The infotainment display and controls are a separate component from the radio, combined into an assembly. The assembly contains the control knobs and buttons for all audio and HVAC functions and the information display. The assembly is supplied battery voltage and ground from the vehicle harness.

Control information, touch communications and dimming level for the display are communicated via a LIN serial data circuit to the human machine interface module.

The human machine interface module sends the display digital video data for on-screen display through a dedicated video cable.

The controls communicate via a LIN serial data circuit with the remote radio receiver . Messages communicated include the following:

- Wake-up/power state messages
- Diagnostic information
- Button presses/knob rotations
- Commands for the state of indicators
- Back-lighting dimming level

HVAC data for controls and status indicators is communicated between the HVAC controls and the HVAC control module with a separate LIN serial data circuit. HVAC status screen information from the HVAC control module is transmitted to the radio on the GMLAN serial data circuit. The radio communicates the desired screen information to the human machine interface module to be sent to the information display using the video data circuits.

## Antenna System

### Mast Antenna

The mast antenna is responsible for AM and FM radio reception. The antenna is attached to a base. The coaxial cable is connected to the base, and this cable is connected to the radio.

### Multi-Band Antenna

The multi-band antenna is located on the roof of the vehicle. This type of antenna may be used with the AM/FM radio, but is primarily for cellular, GPS signals, and XM signals, if the vehicle has these features. Keep this antenna clear of snow and ice build up for clear reception. If the vehicle has a sunroof, the performance of the system may be affected if the sunroof is open. Loading items onto the roof of the vehicle can interfere with the performance of the system, ensure the multi-band antenna is not obstructed.

## Radio Reception

### AM/FM Radio Signal

The radio signal is sent from a broadcast station and is then received by an antenna. The strength of the signal received depends on the following:

- The power output (wattage) of the broadcasting station
- The location of the vehicle (or receiver) relative to the broadcast tower.
- Height of the broadcast antenna
- Height of the receiving antenna
- Obstacles between the tower and the receiver
- Atmospheric conditions
- What band (AM or FM) the station is broadcasting
- Type of antenna and the ground plane

### Digital Radio Receiver (If equipped)

The XM satellite receiver is integrated into the radio. XM satellite radio provides digital radio reception. The XM signal is broadcast from two satellites and, where necessary, terrestrial repeaters. The high power satellites allow the antenna to receive the XM signal even when foliage and other partial obstructions block the antennas view of the satellite. Terrestrial repeaters are used in dense urban areas. These repeaters will receive the satellite signal and re-broadcast them at much higher power levels in order to ensure reception in areas with densely packed tall buildings. A service fee is required in order to receive the XM service.

### Radio Data System (RDS)

The RDS feature is available only on FM stations that broadcast RDS information. This system relies upon receiving specific information from these stations and only works when the information is available. While the radio is tuned to an FM-RDS station, the station name or call letters display. RDS data is carried in what is known as a "subcarrier". A subcarrier is a frequency that the FM broadcaster is authorized to use to send data that is not audible in the main audio program.

RDS functions will only work with FM broadcast stations that are broadcasting RDS data. Not all FM Broadcast stations broadcast RDS data or offer all of the RDS services.

The information displayed is dependent upon the information broadcast by the particular station. The information may vary greatly between stations. RDS functions may not work properly when reception is weak, reception is of poor quality, or RDS is not implemented properly by the FM Broadcaster. In some cases, a radio station broadcasting incorrect information may cause the RDS features of the radio to appear to work improperly.

With RDS, the radio can do the following:

- Display text information such as: station identification, type of programming, and general information (artist and song title, station messages, call in phone numbers, etc.).
- Seek to stations broadcasting the selected type of programming
- Receive announcements concerning local and national emergencies
- Receive alert warnings of local or national emergencies. When an alert announcement comes on the current radio station, ALERT! displays. You will hear the announcement, even if the volume is low or a CD is playing. If a CD is playing, play stops during the announcement. Alert announcements cannot be turned off. ALERT! is not affected by tests of the emergency broadcast system. This feature is not supported by all RDS stations.

### Theft Deterrent

The radio theft deterrent system is intended to disable or limit radio functionality if incorrect vehicle information is received by the radio. The radio disables functionality if the VIN information received by the radio does not match the VIN information that has been learned by the radio. The radio receives this information via serial data. A possible cause of incorrect VIN info could be the radio was originally installed in another vehicle.

The radio has the following theft operating modes as part of the theft deterrent system:

- Normal Mode: The radio has learned a correct VIN sequence and the VIN information received via serial data matches the learned VIN sequence. In this mode the radio has full functionality.
- No VIN Mode: The radio has not received or learned a correct VIN sequence. In this mode the radio has limited functionality.
- Theft Detected Mode: The radio has learned a correct VIN sequence and the VIN information received via serial data does NOT match the learned VIN sequence. In this mode the radio may be disabled or have limited functionality. The radio display will indicate that theft protection is active.

### Bluetooth ® (If equipped)

Bluetooth ® wireless technology is a short-range communications technology intended to replace the cables connecting portable and/or fixed devices while maintaining high levels of security. The operating range of the signal is approximately 30 feet.

The available features and functions are determined by the type of device and the software within the devices being used. For a feature or function to operate, it must be supported in both devices.

The first connection between devices is established through a process called pairing. In order to pair two devices, a password (passkey) has to be exchanged between the two devices. One device will generate the password, the other device accepts the password to complete the process. Once the devices are paired, future connections between the devices will occur automatically when the devices are on and within range of each other.

The Bluetooth ® hardware is internal to the human machine interface module. The human machine interface module supports streaming of data (music, voice, information) from cellular phones and other mobile devices that support those features. The human machine interface module is also capable of interfacing with cellular phones for hands-free features.

- The device must be paired to the system to use the available Bluetooth ® feature(s). The pairing process must only be performed once for each device, unless that device’s information is deleted.
- Up to five devices can be paired, but only one can be connected at any given time.
- Streaming Audio allows playing music from the mobile device wirelessly. Music stored on the mobile device can be viewed and controlled from the display.
- To stream audio from a mobile device, the device must be unlocked, and any additional applications should be closed.

Refer to the vehicle owners manual, supplements, and the device manufacturers information for pairing instructions.

### Applications (If equipped)

When the system is equipped with Bluetooth ®, the system is capable of using applications, commonly referred to as apps.

The term application refers to any piece of software that works on a system (hardware) that is being operated by it’s own software. Applications are typically small software programs which uses the hardware to perform a specific task, as opposed to operating the entire system.

- For an application to be used, it must be installed on both the vehicle infotainment system and a compatible mobile device.
- The device must be connected to the system. this may be done wirelessly via Bluetooth ®, or via the vehicle USB port. Refer to the device manufacturers information for the proper connection method.
- When the device is connected, the vehicle infotainment system is used to remotely access and control the application on the mobile device.
- The application must work correctly on the device to work with the vehicle infotainment system.
- The user may be required to log-in to the application on the mobile device before using the application from the vehicle controls.
- Using applications will use the device’s data plan.
- The device must be unlocked, and any additional applications should be closed.

Refer to the owner’s manual and supplements for information on mobile devices, control, and operation.

### Auxiliary Audio Input Jack (If equipped)

The infotainment system may have a 3.5mm (1/8 in.) auxiliary audio input jack located in the center console. The auxiliary audio input jack interfaces directly with the radio. When a portable audio playback device is connected to the auxiliary jack, an internal switch detects the connection and the radio will switch to AUX as the audio source. Audio signals from the device are sent to the radio from the auxiliary jack via the left, right, and common audio signal circuits.

- When a device is first connected to the 3.5mm (1/8 in.) input jack the infotainment system automatically switches to that device. If an auxiliary device has already been connected, press the AUX or CD/AUX button to select the device.

- Playback of an audio device that is connected to the 3.5mm jack can only be controlled using the controls on the device.
- The volume control on the device may need to be adjusted to ensure sufficient playback volume through the infotainment system.

## USB Port and SD Card Reader

The USB port and the card reader slot interface with a hub device, internal to the auxiliary jack, USB, and memory card receptacle assembly. The auxiliary jack, USB, and memory card receptacle assembly receives fused battery voltage and ground from the harness to power the internal hub device as well as providing additional amperage to power USB devices.

The internal hub device interfaces directly with the human machine interface module via a standard USB cable. A Mini type USB connector is used to connect the cable at the USB port and at the human machine interface module and at the auxiliary jack, USB, and memory card receptacle. Standard USB male to female connections are typically used for connecting USB cables together where an in-line connection is required. An in-line cable connection is typically found between the console and I/P harness.

### USB Port

The USB port allows connectivity to the infotainment system from portable media players or a USB storage device (memory stick/ flash drive). When a device is connected to the USB port, the system detects the device and switches to USB as the audio source. Once connected, the device can be controlled from the radio controls.

Not all portable media player devices or file types are compatible. Connection to USB HUB devices is not supported.

Refer to the owner's manual for information on USB devices, control, and operation.

### SD Card Reader

The infotainment system uses the SD card reader as a mass storage device, similar to a USB storage device.

Refer to the owners manual for information on media types supported via the SD card reader.

## Navigation System Components and Features (if equipped)

The human machine interface module provides navigation functionality, if equipped. The human machine interface module provides the following:

- Connection to the global positioning system (GPS) antenna, which provides the vehicle position information.
- Map data for navigation and map route guidance, stored in the human machine interface modules internal memory.
- Route guidance with verbal prompts to the operator.
- Traffic and weather information for display on the navigation system map (with active subscription, where available).

### Global Positioning System (GPS) Antenna

The global positioning system (GPS) antenna is part of the multi-band antenna located on the roof of the vehicle. The GPS antenna is used to collect the signals of the orbiting GPS satellites. Within the antenna is housed a low noise amplifier that allows for a more broad and precise reception of this data. The GPS antenna amplifier is powered through the coaxial cable.

The antenna is connected to the human machine interface module directly, or through a signal splitter. The signal splitter is a component for dividing the navigation signal into two paths without any transmission loss. This allows the use of a single GPS antenna to provide a signal to both the human machine interface module and the telematics communication interface module.

### Route Guidance

The map will display the route to the selected destination. Voice prompts alert the operator of upcoming events (turns) and arrivals at the destination. The navigation system will automatically recalculate if the route is not followed. The human machine interface module uses data received from the global positioning system (GPS) satellites, the vehicle speed signal. and serial data information to accurately display the current position of the vehicle.

### Points of Interest

The map database provides point of interest information. Points of interests are locations that are frequently visited. Points of interest can be can be displayed on the map or set as a destination. The following are some of the available Points of interests:

- Gas Station
- Restaurant
- College
- Police Station

## Valet Mode

Valet Mode is a customer enabled feature of the infotainment system, found in the settings menu, if equipped. The customer creates and inputs a four digit code using the infotainment controls. Confirming the code and selecting LOCK will lock the infotainment system, steering wheel controls and other vehicle features, dependant on vehicle equipment. The vehicle will remain in valet mode until the same four digit code is reentered.

In the event that the four digit code is forgotten, the scan tool can be used to clear the Valet Mode Code.

## OnStar ® (If equipped)

When OnStar is activated, a serial data message is sent to the radio that activates a software program. When the software begins its process, the fade goes to the front, Bass and Treble are set to the mid range, the outputs are mono, and the audio source is OnStar. OnStar takes priority over any other audio source. All of these actions are preset values stored in the radio.

For additional OnStar information, refer to OnStar Description and Operation.

## Steering Wheel Controls (If equipped)

Some audio functions are available using the steering wheel controls. The steering wheel controls duplicate the function of the primary controls available on the radio.

For additional information on steering wheel controls, refer to Steering Wheel Controls Description and Operation.

## Auto Volume Control

With auto volume control, the audio system will adjust automatically to make up for road and wind noise as you drive, by increasing the volume as vehicle speed increases. To use auto volume control, set the volume at the desired level, and then select either Low, Medium, or High. To turn auto volume control off, select the Off screen button.

## Radio/Audio System Description and Operation (IOB)

The entertainment system on this vehicle may have several different configurations available to it. To determine the specific configuration of the vehicle, please see the Service Parts ID Label, and refer to RPO Code List.

Each item in the list below represents topics covered in detail below.

- Radio Circuit Operation
- Information Display and Controls
- Antenna System
- Radio Reception
- Speaker Operation
- Audio Amplifier (If equipped)
- Theft Deterrent
- Bluetooth ® (if equipped)
- Auxiliary Audio Input Jack (If equipped)
- USB Port (If equipped)
- OnStar ®
- Steering Wheel Controls (If equipped)
- SCV (Speed Compensated Volume)
- FOTA (Firmware Over The Air)

### Radio Circuit Operation

#### Radio Power

The radio is supplied power by a fused B+ circuit. The radio does not use a discrete ignition feed circuit for power moding. The power mode master provides the system power mode to the radio via serial data messages. The power mode master determines the system power mode by processing power mode information from ignition switch inputs. Serial data power modes supported by the radio are OFF, ACCESSORY, RUN, and CRANK REQUEST.

#### Radio Retained Accessory Power

The radio retained accessory power system is controlled by serial data. The activation/termination is the same as relay operation (see Retained Accessory Power Description and Operation) with one exception; the only door switch that will turn off the radio during retained accessory power is the driver door open switch.

#### Radio Grounds

The vehicle harness provides a ground for the radio circuits. The radio may also be case grounded.

#### Radio Data Link Communication

The radio communicates with other modules via serial data.

#### Radio Audio Outputs

Each of the audio output channel circuits (+) and (-), at the radio have a DC bias voltage that is approximately one half of battery voltage. The audio being played on the system is produced by a varying AC voltage that is centered around the DC bias voltage on the same circuit. The AC voltage is what causes the speaker cone to move and produce sound. The frequency (Hz) of the AC voltage signal is directly related to the frequency of the input (audio source playing) to the audio system. Both the DC bias voltage and the AC voltage signals are needed for the audio system to properly produce sound.

### Information Display and Controls

The info display module and radio controls can be separate components from the radio or combined with the radio into one assembly.

When the info display module and radio controls are separate the radio controls communicate radio control inputs directly to the radio through discrete circuits for volume up, volume down and power ON button. It also uses a series of resistors through a single signal circuit when the home, seek up, seek down and phone buttons are pressed. After receiving the message the radio will perform the requested function. The info display module receives digital video data from the radio for on-screen display information through the LVDS (Low Voltage Differential Signal) cable. The radio communicates with the info display module over the radio display touch interrupt request signal for touch screen inputs.

### Antenna System

#### Multi-Band Antenna

The multi-band antenna is located on the roof of the vehicle. This type of antenna may be used with the AM/FM radio, but is primarily for cellular and GPS signals, if the vehicle has these features. Keep this antenna clear of snow and ice build up for clear reception. If the vehicle has a sunroof, the performance of the system may be affected if the sunroof is open. Loading items onto the roof of the vehicle can interfere with the performance of the system, ensure the multi-band antenna is not obstructed.

#### Active Antenna

The active antenna system uses an integral antenna applied as an appliqué to the rear glass. The antenna module receives both AM and FM signals from the rear glass antenna. The antenna is part of the rear window and looks similar to the defogger grid. One antenna receives AM signals while the other antenna receives FM signals. Any damage to the antenna requires replacing the glass.

The radio antenna module is enabled when the radio is turned on. The radio provides battery voltage to the antenna module using the center conductor of the antenna coaxial cable. When a 12 V signal is seen by the module on the center conductor of the antenna coax, both AM and FM signals are amplified.

### Radio Reception

### AM/FM Radio Signal

The radio signal is sent from a broadcast station and is then received by an antenna. The strength of the signal received depends on the following:

- The power output (wattage) of the broadcasting station
- The location of the vehicle (or receiver) relative to the broadcast tower.
- Height of the broadcast antenna
- Height of the receiving antenna
- Obstacles between the tower and the receiver
- Atmospheric conditions
- What band (AM or FM) the station is broadcasting
- Type of antenna and the ground plane

### Radio Data System (RDS)

The RDS feature is available only on FM stations that broadcast RDS information. This system relies upon receiving specific information from these stations and only works when the information is available. While the radio is tuned to an FM-RDS station, the station name or call letters display. RDS data is carried in what is known as a "subcarrier". A subcarrier is a frequency that the FM broadcaster is authorized to use to send data that is not audible in the main audio program.

RDS functions will only work with FM broadcast stations that are broadcasting RDS data. Not all FM Broadcast stations broadcast RDS data or offer all of the RDS services.

The information displayed is dependent upon the information broadcast by the particular station. The information may vary greatly between stations. RDS functions may not work properly when reception is weak, reception is of poor quality, or RDS is not implemented properly by the FM Broadcaster. In some cases, a radio station broadcasting incorrect information may cause the RDS features of the radio to appear to work improperly.

With RDS, the radio can do the following:

- Display text information such as: station identification, type of programming, and general information (artist and song title, station messages, call in phone numbers, etc.).
- Seek to stations broadcasting the selected type of programming
- Receive announcements concerning local and national emergencies
- Receive alert warnings of local or national emergencies. When an alert announcement comes on the current radio station, ALERT! displays. You will hear the announcement, even if the volume is low or if an auxiliary device is playing. If an auxiliary device is playing, play stops during the announcement. Alert announcements cannot be turned off. ALERT! is not affected by tests of the emergency broadcast system. This feature is not supported by all RDS stations.

## Digital Radio Receiver (If equipped)

The vehicle may have one of two digital radio options, satellite transmitted (XM-Sirius) or terrestrial Digital Audio Broadcast (DAB) depending on geographical area.

### XM-Sirius

The XM satellite receiver is integrated into the radio. XM satellite radio provides digital radio reception. The XM signal is broadcast from two satellites and, where necessary, terrestrial repeaters. The high power satellites allow the antenna to receive the XM signal even when foliage and other partial obstructions block the antennas view of the satellite. Terrestrial repeaters are used in dense urban areas. These repeaters will receive the satellite signal and re-broadcast them at much higher power levels in order to ensure reception in areas with densely packed tall buildings. A service fee is required in order to receive the XM service.

### Digital Audio Broadcast (DAB)

The DAB receiver is integrated into the radio. DAB radio provides digital radio reception. The DAB signal is broadcast from terrestrial transmitters. Services available can include: main radio stations, additional stations (news, sports, etc..) and data services (digital images, video and other data). The availability of services is dependent upon broadcasters in the area. The strength of the DAB signal depends on the following:

- The power output (wattage) of the broadcasting station
- Location of the vehicle (or receiver) relative to the broadcast tower
- Height of the broadcast antenna
- Height of the receiving antenna
- Obstacles between the tower and the receiver
- Type of antenna and the ground plane

## Speaker Operation

Speakers turn electrical energy into mechanical energy to move air, using a permanent magnet and an electromagnet. The electromagnet is energized when the radio or amplifier (if equipped) delivers current to the voice coil on the speaker. The voice coil will form a north and south pole that will cause the voice coil and the speaker cone to move in relation to the permanent magnet. The current delivered to the speaker is rapidly changing alternating current (A/C). This causes the speaker cone to move in two directions producing sound.

## Audio Amplifier (If equipped)

### Amplifier Interface

A fused battery voltage circuit provides the main amplifier power. A switched 12 V output from the radio is used to control the power - state of the amplifier. To respond quickly to audio input and control signals, the amplifier is ON in all vehicle power modes except OFF and CRANK Request. The internal amplifier bridges are fully powered and unmuted when the amplifier receives the switched 12 V input.

### Amplifier Operation

The purpose of the amplifier is to increase the power of a voltage or current signal. The output signal of an amplifier may consist of the same frequencies as the input signal or it may consist of only a portion of the frequencies as in the case of a subwoofer or midrange speaker. The radio creates a low level stereo audio output signal, which is sent at the user-defined volume level to the audio amplifier. The audio amplifier amplifies the signal and sends it to the appropriate speakers. Each of the audio output channel circuits (+) and (-), from the amplifier have a DC bias voltage that is approximately one half of battery voltage. The audio being played on the system is produced by a varying AC voltage that is centered around the DC bias voltage on the same circuit. The AC voltage is what causes the speaker cone to move and produce sound. The frequency (Hz) of the AC voltage signal is directly related to the frequency of the input (audio source playing) to the audio system. Both the DC bias voltage and the AC voltage signals are needed for the audio system to properly produce sound.

### Theft Deterrent

The radio theft deterrent system is intended to disable or limit radio functionality if incorrect vehicle information is received by the radio. The radio disables functionality if the VIN information received by the radio does not match the VIN information that has been learned by the radio. The radio receives this information via serial data. A possible cause of incorrect VIN info could be the radio was originally installed in another vehicle.

The radio has the following theft operating modes as part of the theft deterrent system:

- Normal Mode: The radio has learned a correct VIN sequence and the VIN information received via serial data matches the learned VIN sequence. In this mode the radio has full functionality.
- No VIN Mode: The radio has not received or learned a correct VIN sequence. In this mode the radio has limited functionality.
- Theft Detected Mode: The radio has learned a correct VIN sequence and the VIN information received via serial data does NOT match the learned VIN sequence. In this mode the radio may be disabled or have limited functionality. The radio display will indicate that theft protection is active.

### Bluetooth® (If Equipped)

Bluetooth® wireless technology is a short-range communications technology intended to replace the cables connecting portable and/or fixed devices while maintaining high levels of security. Only vehicles with steering wheel controls will have Bluetooth® functionality. In order to utilize the vehicle’s Bluetooth® system, a Bluetooth® equipped cellular phone is required.

The Bluetooth® antenna is internal to the telematics communication interface control module, radio or human machine interface module and is used to send and receive signals from a Bluetooth® enabled cellular phone. The available features and functions are determined by the software within the device being used and the telematics communication interface control module. The operating range of the signal from the vehicle is approximately 30 feet. Note that the operating range is dependent upon the cellular phone being used and battery level of the phone.

With Bluetooth® technology customers can experience hands-free calling as their Bluetooth® capable cellular phones are wirelessly connected to the vehicle. It will allow customers to place and receive calls using the steering wheel controls and voice recognition. The vehicle audio system will allow you to listen to your call through the vehicle speakers and adjust volume through steering wheel or radio controls.

Not all Bluetooth® cellular phones are guaranteed to work with the vehicle’s Bluetooth® system. Based on the cellular phone’s service provider and the manufacturer’s implementation of Bluetooth®, not all phones support all available Bluetooth® functionality. Bluetooth® enabled cellular phones will be tested for vehicle compatibility and a feature compatibility list will be provided via the GM Bluetooth® website: http://www.gm.com/vc/bluetooth/

### Bluetooth® Features Supported

The following is a list of features supported by the Bluetooth® system. Note that not all devices will support all of the listed functions.

- Automatic reconnection – highest priority phone will automatically be connected to vehicle when vehicle ignition is on
- Hands-free dialing- via digits, redial, name tags (phone number saved to a nametag via voice recognition)
- Answering a call
- Ending a call
- Mute a Call
- Rejecting a call – ignore an incoming call
- Call Waiting
- Three-way Calling – initiated from hands-free system
- Send Number During a Call – this is used when calling a menu-driven phone system
- Transfer a Call – transfer call from vehicle to cellular phone and visa versa
- Voice Pass-Thru – allow access to the voice recognition commands on the cellular phone

### Auxiliary Audio Input Jack (If equipped)

The infotainment system may have a 3.5mm (1/8 in.) auxiliary audio input jack located in the center console or on the radio faceplate. The auxiliary audio input jack interfaces directly with the radio. When a portable audio playback device is connected to the auxiliary jack, an internal switch detects the connection and the radio will switch to AUX as the audio source. Audio signals from the device are sent to the radio from the auxiliary jack via the left, right, and common audio signal circuits.

- When a device is first connected to the 3.5mm (1/8 in.) input jack the infotainment system automatically switches to that device. If an auxiliary device has already been connected, press the Media or AUX button to select the device.
- Playback of an audio device that is connected to the 3.5mm jack can only be controlled using the controls on the device.
- The volume control on the device may need to be adjusted to ensure sufficient playback volume through the infotainment system.

### USB Port (If Equipped)

The infotainment system may have a USB connector located in the center console. The USB connector interfaces directly with the radio. The USB connector supports both USB standards 1.1 and 2.0.

USB Supported Devices:

- USB Flash Sticks (Thumb Drives)
- Portable USB Hard Drives

- Portable Digital Media Players (iPOD®, ZUNE®, etc)

Depending on the USB device, some devices may not be recognized, or some features/functions may not be able to be controlled with the radio controls. USB HUB devices are not supported.

Refer to the owner's manual for information on USB devices, control, and operation.

### OnStar ® (If equipped)

When OnStar is activated, a serial data message is sent to the radio that activates a software program. When the software begins its process, the fade goes to the front, Bass and Treble are set to the mid range, the outputs are mono, and the audio source is OnStar. OnStar takes priority over any other audio source. All of these actions are preset values stored in the radio.

### Steering Wheel Controls (If equipped)

Some audio functions are available using the steering wheel controls. The steering wheel controls duplicate the function of the primary controls available on the radio.

For additional information on steering wheel controls, refer to Steering Wheel Controls Description and Operation.

### Speed Compensated Volume

With Speed Compensated Volume the audio system will adjust automatically to make up for road and wind noise as you drive, by increasing the volume as vehicle speed increases. To use speed compensated volume, set the volume to the desired level, then select either Low, Medium, or High. To turn SCV off select the Off screen button.

### Firmware Over The Air

The Firmware Over The Air feature was designed to reflash software remotely. Remote reflash is an in-vehicle feature that enables the installation of a software package to update the infotainment system without requiring service test equipment to be physically connected to the vehicle. Remote reflash will utilize a long range or short range connection from the host module to a remote IT system.

## Video Entertainment System Description and Operation

Each item in the list below represents topics covered below:

- Rear Seat Entertainment System Components
- Media Disc Player
- Video Display Screens
- Remote Control
- Wireless Headphones
- Wired Headphone Jack
- Auxiliary Inputs

### Rear Seat Entertainment System Components

The rear seat entertainment system includes:

- The disc player for playing optical media.
- A video display screen
- An infrared module located in the rear video display
- Two sets of wireless infrared headphones
- A wireless infrared remote control
- An auxiliary input assembly

### Media Disc Player

The media disc player is responsible for playing optical media for the infotainment system, refer to the Owners Manual for supported media types.

The media disc player is a separate component from the radio. The media disc player receives power, ground and serial data from the vehicle harness. The media disc player receives control information and outputs audio to the infotainment system over the MOST bus. The media disc player provides a discrete circuit to control the power state of the rear displays.

The media disc player is also the control module for the rear seat entertainment system, responsible for video output, infrared audio, screen controls and source selections for the system. All information to the video screen is communicated over the LVDS cable. One cable is connected to the front display, and a second cable is connected to the rear display.

### Video Display Screens

#### Front Display

When the vehicle is in PARK, the front display is capable of showing video sourced from the media disc player. Information is transmitted to the display from the media disc player via the blue LVDS cable. On screen controls are available to provide the operator with playback controls and other options.

#### Rear Display

The second row overhead display is located in the headliner. The display screen shows video from the media disc player, or an AUX input device.

The display receives power and ground from the vehicle harness. A discrete control circuit from the media disc player is used to control the power state of the display. The display receives all other video, audio, and control information via the LVDS cable.

The display contains the infrared transmitters for the wireless headphones and the remote control. During operation, the infrared transmitters may be visible as illuminated LEDs.

### Remote Control

The wireless remote control is used to operate the system from the rear seat. Infrared signals from the remote control are received by the infrared receivers in display. The remote control can be used to turn the rear screen on or off, to change system settings, and to select the source for the screen from the media available to the infotainment system. Refer to the Owners Manual for additional information on remote control functions.

Direct sunlight or very bright light may affect the ability of the infrared receivers to respond to signals from the remote control. Objects blocking the line of sight may also affect the function of the remote control.

### Wireless Headphones

Wireless headphones allow for rear seat passengers to listen to an audio source without disturbing the listening of front seat passengers. The wireless headphones receive audio signals from the infrared transmitter in the display. This transmission is line of sight only, so audio quality may be degraded if anything blocks the transmitter signal from reaching the headphones.

A power button on the headphone is used to turn the headphone on. A red LED illuminates when the headphone is turned ON. The headphones automatically turn OFF if they lose the infrared signal from the system for approximately 4 minutes in order to preserve their battery power. The signal may be lost if the system is turned off or if the headphones are out of range of the infrared signal transmitters.

Each set of headphones has a rotary volume control on one of the earpieces. To adjust the volume, adjust this control.

Audio to the wireless headphones is provided over 2 channels. Audio for channel 1 or channel 2 is selected from one of the available sources using the remote control. Pressing the button in the center of the headphone volume control will switch the headphone between channels.

### Auxiliary Inputs

The rear seat entertainment system has an auxiliary input assembly that contains a USB port, an SD card reader, RCA type audio/video jacks, and a wired headphone jack with volume control. Refer to the Owners Manual for information on compatible devices and supported media types/formats.

#### USB port and SD Card Reader

The USB port and SD card reader slot interface with a hub device, internal to the assembly. The assembly receives fused battery voltage and ground from the harness to power the internal hub device as well as providing additional amperage to power USB devices.

The internal hub device interfaces directly with the media disc player via a standard USB cable. A Mini type USB connector is used to connect the cable at the media disc player and the auxiliary input assembly. Mini type USB male to female connections are used for connecting USB cables together where an in-line connection is required. An in-line cable connection is typically found between the console and I/P harness.

The USB port allows connectivity to the rear seat entertainment system from portable media players or a USB storage device (memory stick/ flash drive). The rear seat entertainment uses the SD card reader as a mass storage device, similar to a USB storage device.

Once a supported device is connected to the USB port or SD card reader, the device may be sourced to one or both of the rear displays using the remote control.

### Video

The local video input is the standard yellow RCA color-coded jacks. A composite video signal from a device can be attached to this input and is then available to be sourced to one or both of the rear screens. To use this video input, connect the auxiliary device cables to the RCA jacks and power ON both the auxiliary device and the rear seat entertainment system.

Power for the device is not supplied by this connection. The rear seat entertainment system cannot control the operation of devices connected to the RCA jacks. All operation of the device must be done using the controls available on the device.

### Wired Headphone Jack

The wired headphone jack is used to connect an additional set of headphones to the system. Audio for the wired headphone jack can be from either the left or the right screen source, and is selected using the remote control.

Audio to the wired headphone jack is transmitted through the vehicle harness from the media disc player. A rotary control near the headphone jack is used to adjust the volume.

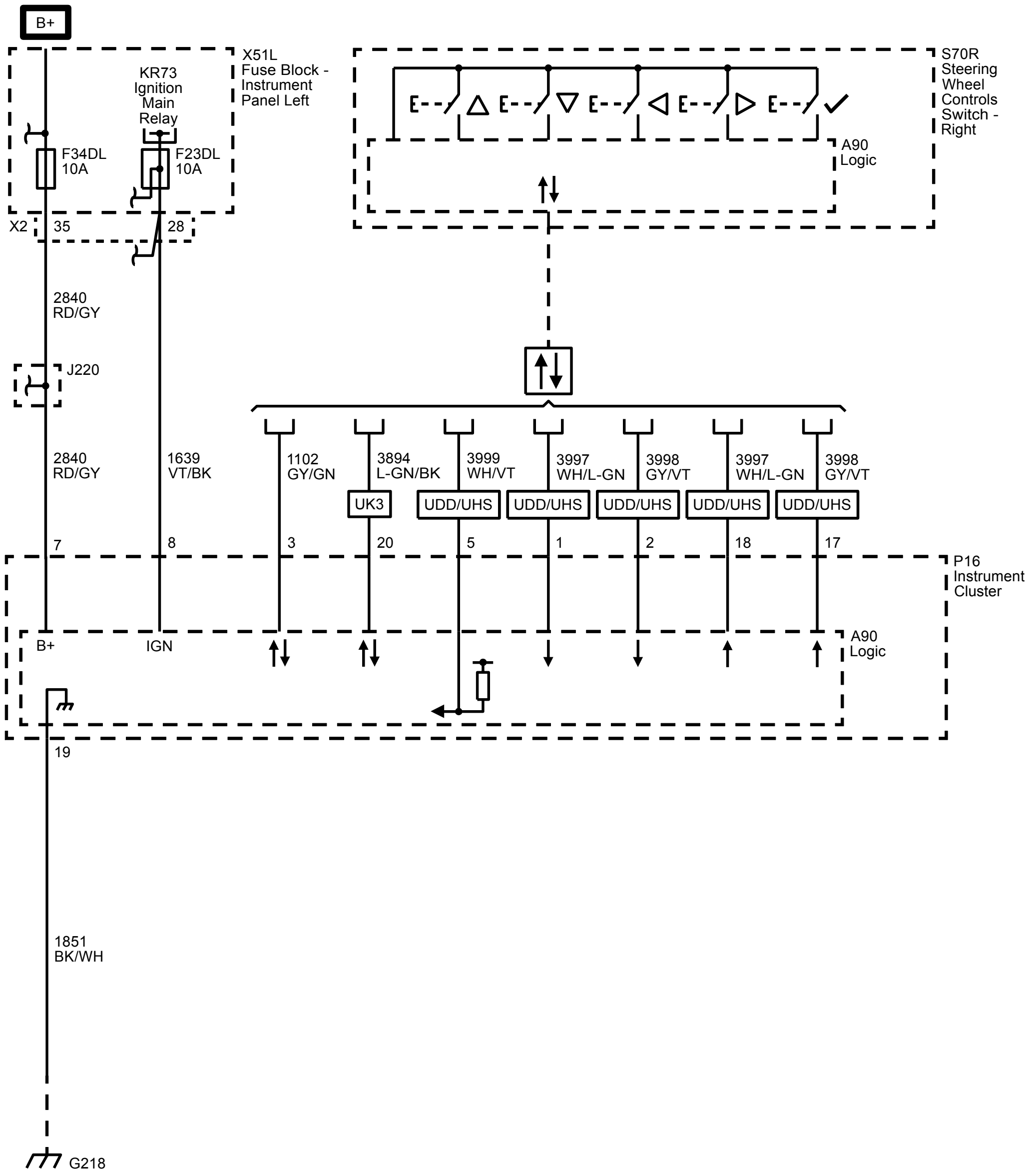
# Driver Information and Entertainment

## Displays and Gauges

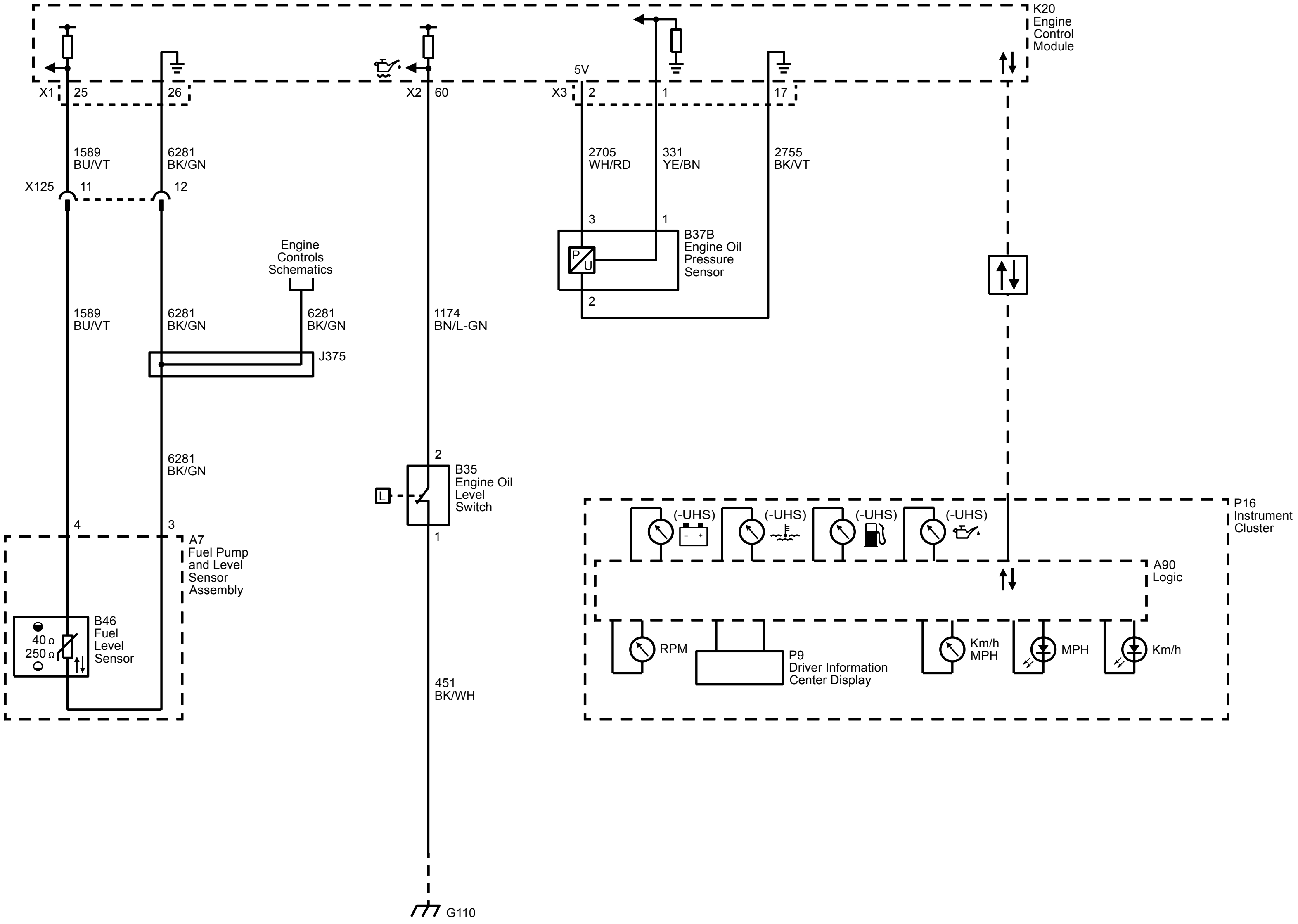
### Schematic and Routing Diagrams

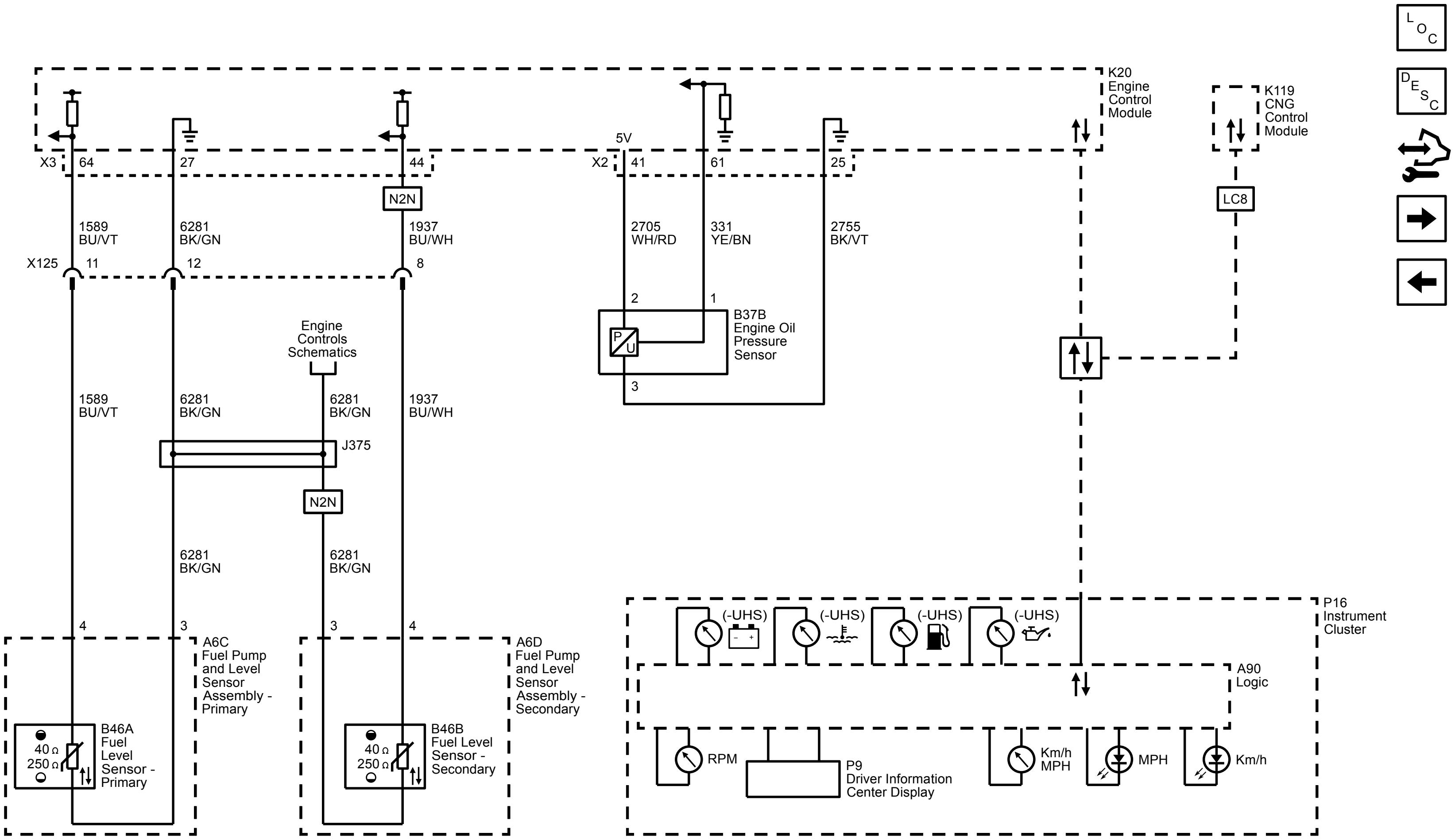
#### Instrument Cluster Schematics

**Power, Ground and Serial Data**

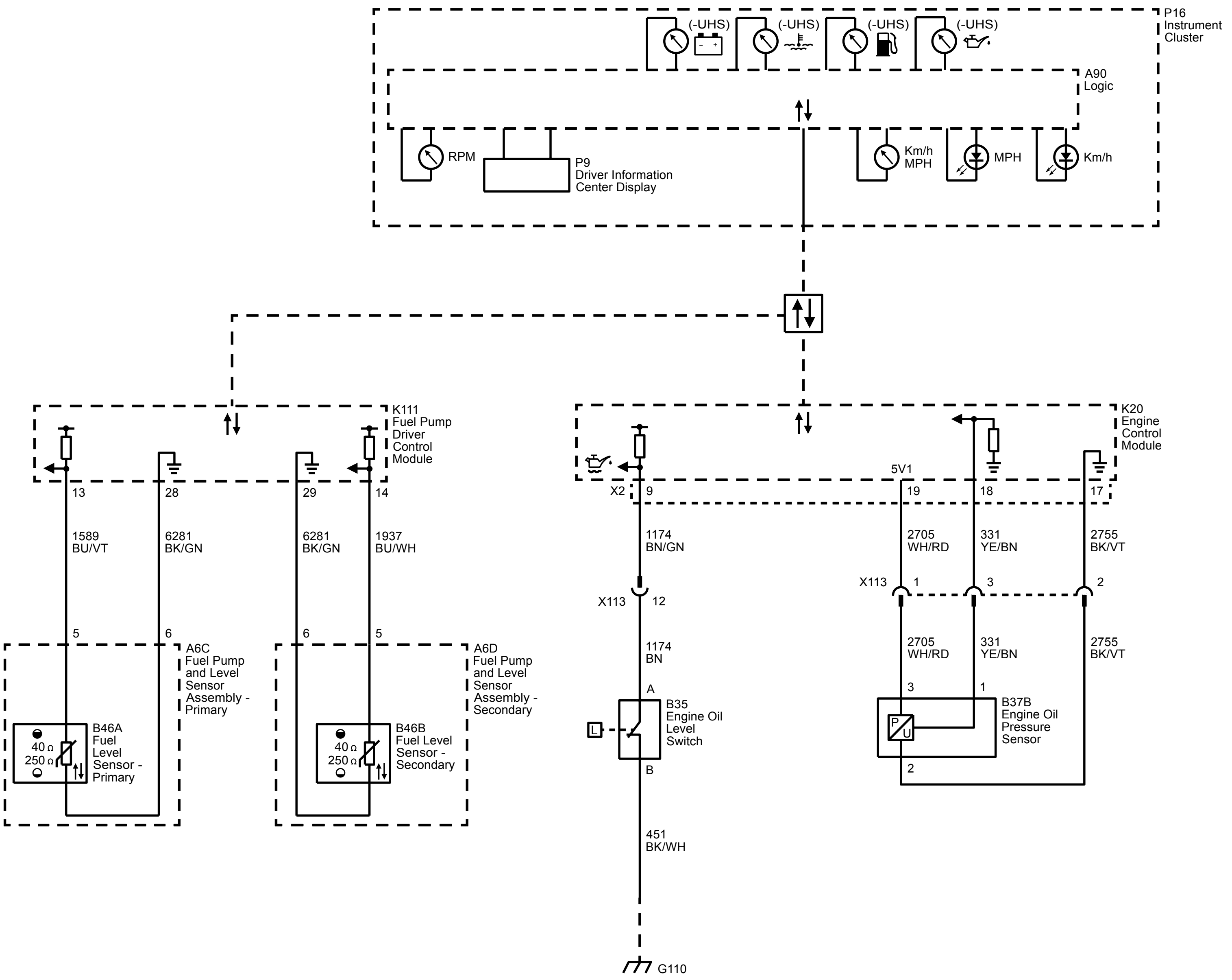


B+
X51L
Fuse Block -
Instrument
Panel Left
KR73
Ignition
Main
Relay
F34DL
10A
F23DL
10A
X2
35
28
2840
RD/GY
J220
2840
RD/GY
1639
VT/BK
S70R
Steering
Wheel
Controls
Switch -
Right
A90
Logic
1102
GY/GN
3894
L-GN/BK
UK3
3999
WH/VT
UDD/UHS
3997
WH/L-GN
UDD/UHS
3998
GY/VT
UDD/UHS
3997
WH/L-GN
UDD/UHS
3998
GY/VT
UDD/UHS
7
8
3
20
5
1
2
18
17
P16
Instrument
Cluster
B+
IGN
A90
Logic
19
1851
BK/WH
G218

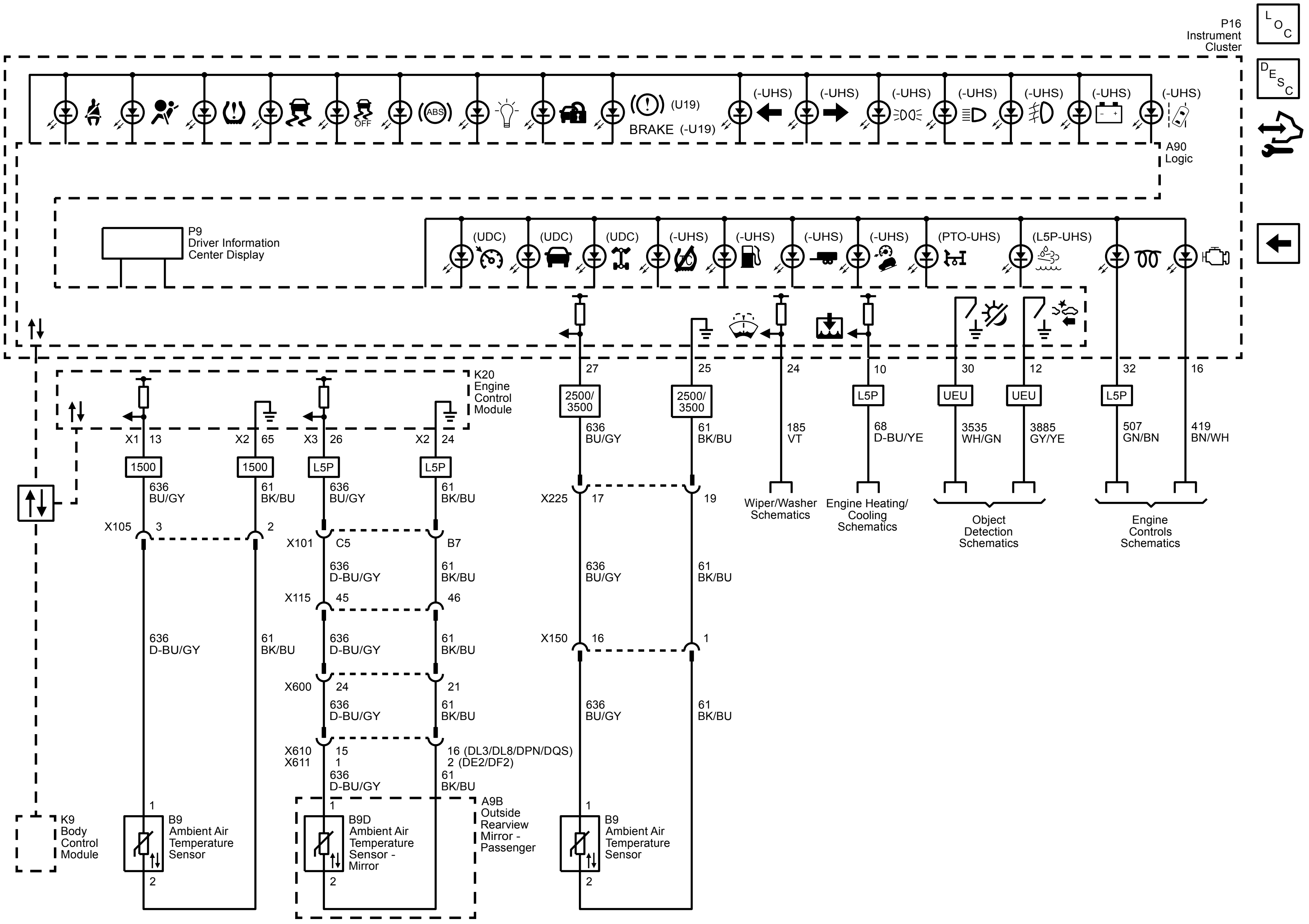

K20
Engine
Control
Module
X1
25
26
X2
60
5V
X3
2
1
17
1589
BU/VT
6281
BK/GN
2705
WH/RD
331
YE/BN
2755
BK/VT
X125
11
12
3
1
B37B
Engine Oil
Pressure
Sensor
P
U
2
Engine
Controls
Schematics
1589
BU/VT
6281
BK/GN
6281
BK/GN
1174
BN/L-GN
J375
6281
BK/GN
2
B35
Engine Oil
Level
Switch
L
1
4
3
A7
Fuel Pump
and Level
Sensor
Assembly
B46
Fuel
Level
Sensor
40 Ω
250 Ω
(-UHS)
(-UHS)
(-UHS)
(-UHS)
P16
Instrument
Cluster
A90
Logic
RPM
P9
Driver Information
Center Display
Km/h
MPH
MPH
Km/h
451
BK/WH
G110


K20
Engine
Control
Module
K119
CNG
Control
Module
X3
64
27
44
5V
X2
41
61
25
N2N
LC8
1589
BU/VT
6281
BK/GN
1937
BU/WH
2705
WH/RD
331
YE/BN
2755
BK/VT
X125
11
12
8
2
1
B37B
Engine Oil
Pressure
Sensor
3
Engine
Controls
Schematics
J375
N2N
4
3
A6C
Fuel Pump
and Level
Sensor
Assembly -
Primary
B46A
Fuel
Level
Sensor -
Primary
40 Ω
250 Ω
A6D
Fuel Pump
and Level
Sensor
Assembly -
Secondary
B46B
Fuel Level
Sensor -
Secondary
P16
Instrument
Cluster
(-UHS)
(-UHS)
(-UHS)
(-UHS)
A90
Logic
RPM
P9
Driver Information
Center Display
Km/h
MPH
MPH
Km/h
LOC
DESC

## Gages (L5P)

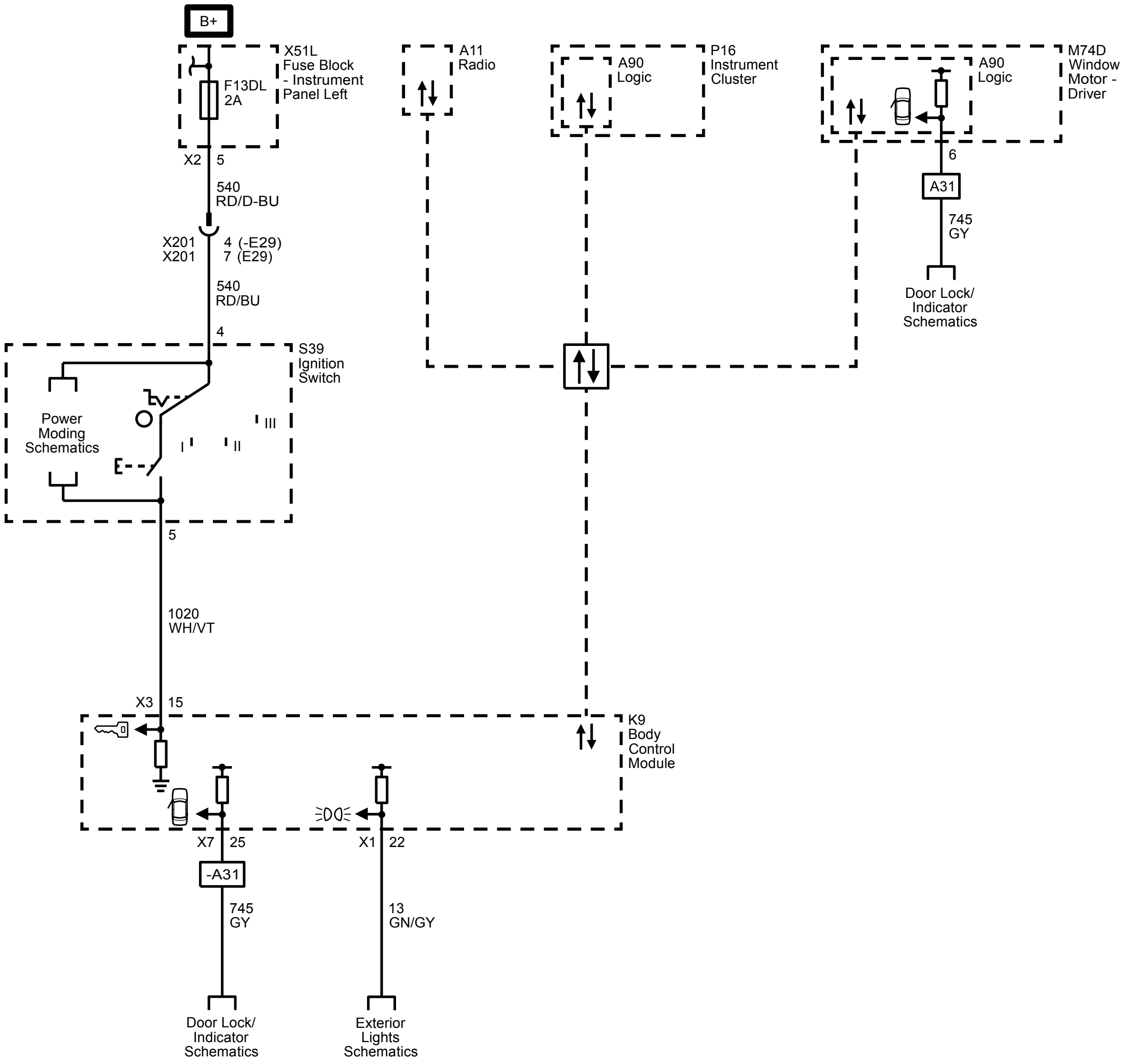


(-UHS)
(-UHS)
(-UHS)
(-UHS)
P16
Instrument
Cluster
A90
Logic
RPM
P9
Driver Information
Center Display
Km/h
MPH
MPH
Km/h
K111
Fuel Pump
Driver
Control
Module
13
28
29
14
1589
BU/VT
6281
BK/GN
6281
BK/GN
1937
BU/WH
5
6
6
5
A6C
Fuel Pump
and Level
Sensor
Assembly -
Primary
B46A
Fuel
Level
Sensor -
Primary
40 Ω
250 Ω
A6D
Fuel Pump
and Level
Sensor
Assembly -
Secondary
B46B
Fuel Level
Sensor -
Secondary
40 Ω
250 Ω
K20
Engine
Control
Module
5V1
X2
9
19
18
17
1174
BN/GN
2705
WH/RD
331
YE/BN
2755
BK/VT
X113
1
3
2
X113
12
1174
BN
2705
WH/RD
331
YE/BN
2755
BK/VT
A
B35
Engine Oil
Level
Switch
L
B
3
1
B37B
Engine Oil
Pressure
Sensor
P
U
2
451
BK/WH
G110

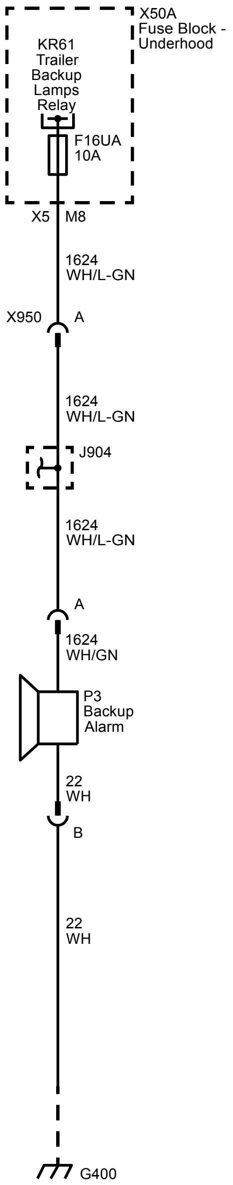

P16
Instrument
Cluster
LOC
DESC
(U19)
BRAKE (-U19)
(-UHS)
(-UHS)
(-UHS)
(-UHS)
(-UHS)
(-UHS)
(-UHS)
ABS
OFF
A90
Logic
P9
Driver Information
Center Display
(UDC)
(UDC)
(UDC)
(-UHS)
(-UHS)
(-UHS)
(-UHS)
(PTO-UHS)
(L5P-UHS)
K20
Engine
Control
Module
X1 13
X2 65
X3 26
X2 24
1500
1500
L5P
L5P
636
BU/GY
61
BK/BU
636
BU/GY
61
BK/BU
X105 3
2
X101 C5
B7
636
D-BU/GY
61
BK/BU
X115 45
46
636
D-BU/GY
61
BK/BU
636
D-BU/GY
61
BK/BU
X600 24
21
636
D-BU/GY
61
BK/BU
X610 15
X611 1
16 (DL3/DL8/DPN/DQS)
2 (DE2/DF2)
636
D-BU/GY
61
BK/BU
A9B
Outside
Rearview
Mirror -
Passenger
1
B9D
Ambient Air
Temperature
Sensor -
Mirror
2
1
B9
Ambient Air
Temperature
Sensor
2
K9
Body
Control
Module
27
25
24
10
30
12
32
16
2500/
3500
2500/
3500
L5P
UEU
UEU
L5P
636
BU/GY
61
BK/BU
185
VT
68
D-BU/YE
3535
WH/GN
3885
GY/YE
507
GN/BN
419
BN/WH
X225 17
19
Wiper/Washer
Schematics
Engine Heating/
Cooling
Schematics
Object
Detection
Schematics
Engine
Controls
Schematics
636
BU/GY
61
BK/BU
X150 16
1
636
BU/GY
61
BK/BU
1
B9
Ambient Air
Temperature
Sensor
2

## Audible Warnings Schematics

### Audible Warnings



B+
X51L
Fuse Block
- Instrument
Panel Left
F13DL
2A
X2
5
540
RD/D-BU
X201
X201
4 (-E29)
7 (E29)
540
RD/BU
4
S39
Ignition
Switch
Power
Moding
Schematics
I
II
III
5
1020
WH/VT
A11
Radio
A90
Logic
P16
Instrument
Cluster
A90
Logic
M74D
Window
Motor -
Driver
6
A31
745
GY
Door Lock/
Indicator
Schematics
X3
15
K9
Body
Control
Module
X7
25
-A31
745
GY
Door Lock/
Indicator
Schematics
X1
22
13
GN/GY
Exterior
Lights
Schematics


X50A
Fuse Block - Underhood
KR61
Trailer
Backup
Lamps
Relay
F16UA
10A
X5
M8
1624
WH/L-GN
X950
A
1624
WH/L-GN
J904
1624
WH/L-GN
A
1624
WH/GN
P3
Backup
Alarm
22
WH
B
22
WH
G400

# Description and Operation

## Audible Warnings Description and Operation

The audible warnings alert the driver of a system concern or a critical vehicle condition. If equipped with an serial data communicating audio amplifier, the audio amplifier generates the audible warnings through the speakers. If not equipped with an audio amplifier, the radio generates the audible warnings through the speakers. The radio or audio amplifier receives audible warning requests via serial data. If the radio or audio amplifier receives multiple audible warning requests, the warning with the highest priority sounds first. Different audible warnings may sound with a different frequency or a different chime pattern, depending on the system or module making the request. The chime volume may be selectable through vehicle personalization.

### Audible Warnings or Chimes

The following is a list of common audible warnings or chimes. For additional chimes or complete system description, refer to the appropriate system's Description and Operation or the vehicle owner's manual.

- Driver Seat Belt Reminder – If the vehicle is started and the seat belt is unbuckled, the BCM requests the radio or audio amplifier sound a chime to indicated that the belt is unbuckled. This is accompanied by a flashing driver seat belt indicator on the instrument cluster. If the belt remains unbuckled, the chime cycle may continue multiple times if the vehicle is driven and the indicator will remain on solid.
- Passenger Seat Belt Reminder – If the passenger presence system determines that their is an occupant in the passenger seat and the vehicle is started with the passenger seat belt unbuckled, the BCM requests the radio or audio amplifier sound a chime to indicated that the belt is unbuckled. This is accompanied by a flashing passenger seat belt indicator. If the belt remains unbuckled, the chime cycle may continue multiple times if the vehicle is driven and the indicator will remain on solid. If an object is placed on the passenger seat, the passenger presence system may interpret this as a passenger occupying the seat. Because the passenger seat belt is unbuckled, the passenger seat belt reminder chime will sound. To correct this, remove the object from the passenger seat.
- Exterior Lamps On Warning – If the exterior lamps are left on after the ignition is turned off and the driver door is opened, the BCM will request the radio or audio amplifier sound a chime as an indicator that the exterior lamps are on.
- Electric Parking Brake (if equipped) – If the electric parking brake switch is pressed while the vehicle is in motion, the parking brake control module will request the radio or audio amplifier sound a chime. To release the parking brake, the brake pedal must be pressed when the electric parking brake switch is pressed. If the brake pedal is not pressed, the parking brake control module will request the radio or audio amplifier sound a chime. A message will also appear on the driver information center.
- Delayed Locking – If the keyless entry transmitter is not in the vehicle and the door lock switch is pressed with the driver door open, the BCM will request the radio or audio amplifier sound a chime three times to indicate that the vehicle has entered a delayed locking state. The doors will automatically lock five seconds after the last door is closed.
- Object Detection – The object detection system sends various chime requests to the radio or audio amplifier during normal operation.

### Additional Warnings

The following warnings have an associated instrument cluster indicator or driver information center message:

- Turn Signal Indicators – The radio or audio amplifier activates the audible warning as requested by the BCM.
- Vehicle Overspeed Message – The radio or audio amplifier activates the audible warning as requested by the BCM.
- Fuel Level Low Message – The radio or audio amplifier activates the audible warning as requested by the BCM.
- Oil Pressure Indicator – The radio or audio amplifier activates the audible warning as requested by the BCM.
- Tire Pressure Low Indicator – The radio or audio amplifier activates the audible warning as requested by the BCM.
- Antilock Brake Indicator – The radio or audio amplifier activates the audible warning as requested by the electronic brake control module.
- Engine Cooling System Messages – The radio or audio amplifier activates the audible warning as requested by the engine control module.
- Transmission Messages – The radio or audio amplifier activates the audible warning as requested by the transmission control module.

### Backup Alarm (with 8S3)

When transmission placed in reverse, the Body Control Module (BCM) activates the KR61 Trailer Backup Lamps Relay which supplies 12V to the reverse lamps and the Backup Alarm simultaneously.

## Indicator/Warning Message Description and Operation

### INDICATOR LIGHT ON

Refer to the OWNER'S MANUAL for the descriptions and explanations of all indicator lights.

For diagnosis and repair information related to an indicator light refer to the System Diagnosis and the Description of Operation that the message relates to.

### MESSAGE DISPLAYED

Refer to the OWNER'S MANUAL for descriptions and explanations of all messages displayed.

For diagnosis and repair information related to a displayed message refer to the System Diagnosis and the Description of Operation that the message relates to.

### CHANGE TIMING BELT MESSAGE

The Instrument Cluster monitors the odometer mileage to determine when timing belt (if equipped) replacement may be necessary. After the vehicle has accumulated approximately 100,000 miles (160,000 kilometers), the Instrument Cluster may display the CHANGE TIMING BELT message. After the engine timing belt has been replaced, reset the CHANGE TIMING BELT message by locating and removing the fuses that supply power to the Instrument Cluster for two minutes.

### BRAKES OVERHEATED

The Electronic Brake Control Module monitors brake usage and compares it to an internal thermal model to determine if the brakes could become overheated. If the Electronic Brake Control Module determines the brakes pads have exceeded a desirable temperature based on the thermal model, it sends a serial data message to the Instrument Cluster to display the BRAKES OVERHEATED message. The message remains displayed until the estimated temperature returns to a desirable range.

### Transmission Shift Lever Position Indicator

The Transmission Shift Lever Position Indicator (if equipped) is located on the center console and indicates the current transmission shift lever position. The Transmission Shift Lever Position Indicator receives power and ground and is controlled by the Body Control Module (BCM) via serial data. The Transmission Control Module determines transmission shift lever position based on signals from the Transmission Internal Mode Switch and sends the shift lever position information to the BCM via serial data.

## Instrument Cluster Description and Operation

### Instrument Cluster (with RPO UDC)

The instrument cluster is a multifunction module that provides the vehicle operator with information that is critical to vehicle operation, such as vehicle speed, engine RPM, oil pressure, battery voltage, fuel level, and coolant temperature, using analog gauges. The instrument cluster also provides the operator with operational warnings and message through various indicators and the driver information center. The driver information center is a one color multifunction display that is located in the instrument cluster. The driver information center has several screens that can be scrolled through by twisting the trip reset stem.

### Instrument Cluster (with RPO UDD)

The instrument cluster is a multifunction module that provides the vehicle operator with information that is critical to vehicle operation, such as vehicle speed, engine RPM, oil pressure, battery voltage, fuel level, and coolant temperature, using analog gauges. The instrument cluster also provides the operator with operational warnings and message through various indicators and the driver information center. The driver information center is a full color multifunction display that is located in the instrument cluster. The driver information center is also tightly integrated with the vehicle’s infotainment system and is highly reconfigurable.

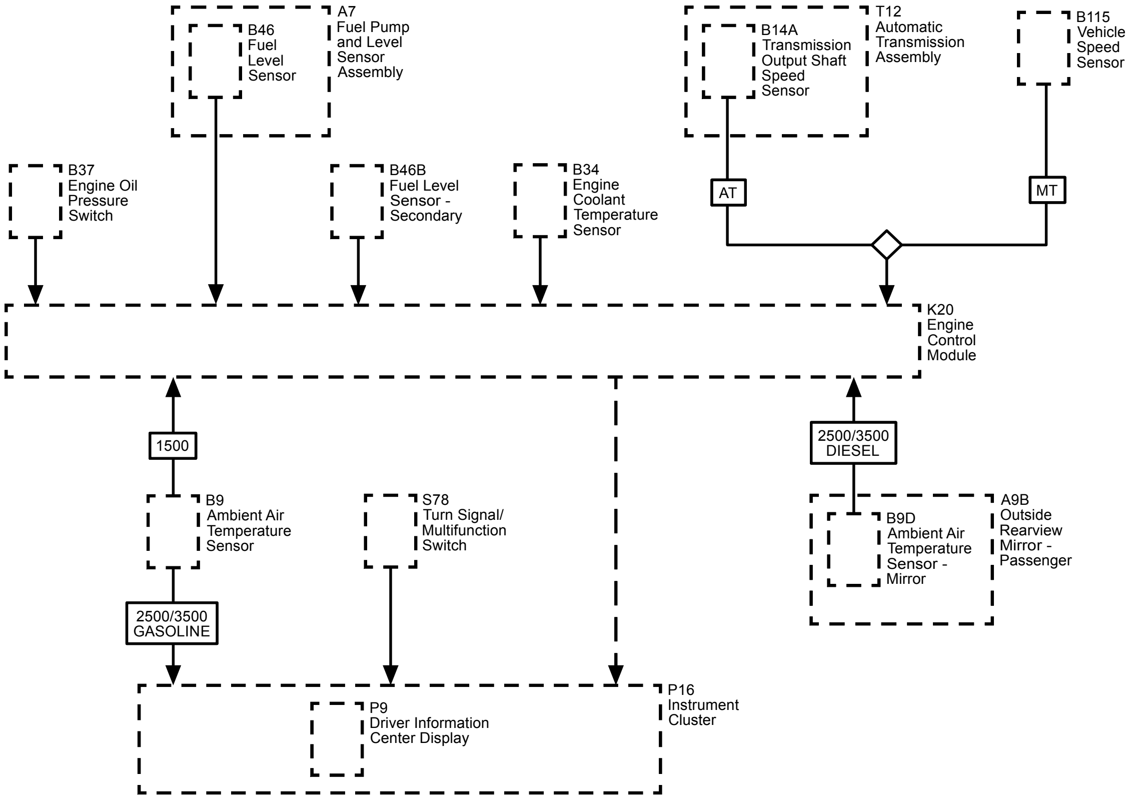
### Instrument Cluster (with RPO UHS)

The instrument cluster is a multifunction module that provides the vehicle operator with information such as vehicle speed and engine RPM using analog gauges. Oil pressure, battery voltage, fuel level, and coolant temperature can also be displayed using an interactive LCD display. The instrument cluster is highly reconfigurable, with four different themes available for selection. The instrument cluster also provides the operator with operational warnings and message through various indicators and the driver information center. Because the instrument cluster is an LCD display, driver information center elements are located in various zones of the display, depending on how the instrument panel is configured.

### Instrument Cluster (with RPO UDV)

The instrument cluster is a multifunction module that provides the vehicle operator with information that is critical to vehicle operation, such as vehicle speed, engine RPM, and coolant temperature, using an interactive LCD display. The instrument cluster is highly reconfigurable, with four different themes available for selection. The instrument cluster also provides the operator with operational warnings and message through various indicators and the driver information center. Because the instrument cluster is an LCD display, driver information center elements are located in various zones of the display, depending on how the instrument panel is configured.

## Displays and Gauges Block Diagram


B46
Fuel
Level
Sensor
A7
Fuel Pump
and Level
Sensor
Assembly
B14A
Transmission
Output Shaft
Speed
Sensor
T12
Automatic
Transmission
Assembly
B115
Vehicle
Speed
Sensor
B37
Engine Oil
Pressure
Switch
B46B
Fuel Level
Sensor -
Secondary
B34
Engine
Coolant
Temperature
Sensor
AT
MT
K20
Engine
Control
Module
1500
2500/3500
DIESEL
B9
Ambient Air
Temperature
Sensor
S78
Turn Signal/
Multifunction
Switch
B9D
Ambient Air
Temperature
Sensor -
Mirror
A9B
Outside
Rearview
Mirror -
Passenger
2500/3500
GASOLINE
P16
Instrument
Cluster
P9
Driver Information
Center Display

### Indicators and Warning Messages

Refer to Indicator/Warning Message Description and Operation.

### Engine Coolant Temperature Gauge

The instrument cluster displays the engine coolant temperature as determined by the engine control module (ECM). The ECM sends the engine coolant temperature information via serial data to the body control module (BCM). The BCM then sends the information via a serial data to the instrument cluster to display the engine coolant temperature.

### Fuel Gauge (Gasoline and Diesel)

The instrument cluster displays the fuel level based on the information from the ECM. The ECM converts the data from the fuel level sensors to a fuel level signal. The ECM sends the fuel level signal via serial data to the BCM. The BCM then sends the information via serial data to the instrument cluster to display the fuel level. If the fuel level falls under 11% the instrument cluster will illuminate the low fuel level indicator. The fuel gauge defaults to empty if:

- The ECM detects a malfunction in the fuel level sensor circuit.

- The BCM detects a loss of serial data communications with the ECM.
- The instrument cluster detects a loss of serial data communications with the BCM.

### Speedometer

The instrument cluster displays the vehicle speed based on the information from the ECM. The ECM sends the vehicle speed information via serial data to the BCM. The BCM then sends the vehicle speed information via serial data to the instrument cluster to display the vehicle speed.

### Odometer

The instrument cluster displays the vehicle odometer in the driver information center. The ECM send a distance rolling count message via serial data to the body control module (BCM). The BCM uses this information to calculate the vehicle odometer. This odometer value is then sent to the instrument cluster. The instrument cluster does not calculate the odometer.

The odometer value is stored in multiple modules. The instrument cluster is a secondary storage module for the odometer, while the BCM is the primary storage and accumulator.

In addition to storing the odometer value for the vehicle, the instrument cluster and the BCM store the VIN. Software checks are performed to ensure these modules, and their stored odometer information, can not be move or transferred between different vehicles.

### Tachometer

The instrument cluster displays the engine speed based on the information from the ECM. The ECM converts the data from the crankshaft position sensor to an engine revolution signal. The ECM sends the engine speed information via serial data to the BCM. The BCM then sends the information via serial data to the instrument cluster to display the engine speed.

### Compass

The vehicle compass information is gather through the compass module or vehicle communication interface module (VCIM). The compass module or VCIM determines vehicle direction and communicates this with the BCM through serial data. The BCM sends the compass information to the instrument cluster via serial data, where it is displayed.

### Outside Air Temperature (1500 series)

The Ambient Air Temperature Sensor is located behind the grille and varies it’s resistance with temperature. The Engine Control Module (ECM) reads the resistance value to determine temperature. The time of and rate of the temperature update is based on an algorithm in the ECM software. Factors such as, last reading, current reading, length of time vehicle is been off/on, power mode, vehicle speed, driven distance, and sensor location are all considered by the ECM to know when to update the displayed temperature. For example, if the sensor is located near the engine compartment, and the vehicle has been turned off for only 10 minutes then restarted, the ECM will wait until the vehicle is driven to get more accurate air flow across the sensor before it updates the display.

### Outside Air Temperature (2500/3500 series)

The Ambient Air Temperature Sensor is located behind the grille and varies it’s resistance with temperature. The Instrument Cluster reads the resistance value to determine temperature. The time of and rate of the temperature update is based on an algorithm in the Instrument Cluster software. Factors such as, last reading, current reading, length of time vehicle is been off/on, power mode, vehicle speed, driven distance, and sensor location are all considered by the Instrument Cluster to know when to update the displayed temperature on the Info Display Module. For example, if the sensor is located near the engine compartment, and the vehicle has been turned off for only 10 minutes then restarted, the Instrument Cluster will wait until the vehicle is driven to get more accurate air flow across the sensor before it updates the display.

On vehicles with diesel engines and RPO AVF, there is an additional Ambient Air Temperature Sensor in the Passenger Outside Rearview Mirror. The Engine Control Module (ECM) reads the resistance value of this sensor to determine outside temperature. This temperature reading is only used for powertrain purposes and is not used for the displayed temperature on the Info Display Module.

### Driver Information Center Display (with RPO UDD)

The driver information center is located in the lower middle portion of the instrument cluster, between the speedometer and the tachometer. The driver information center displays information about the vehicle and allows the operator to access applications. It also displays warning messages if a system problem is detected.

The driver information center is made up of three zones. The left zone is a list of the applications that can be displayed. The right zone contains choices to customize what information is displayed for the respective application chosen. In the middle is the interactive application display zone. The application display zone allows access to the navigation application, audio application, phone application, or settings applications. The information display zone contains multiple pages that display vehicle information. The compass and PRNDL are displayed at all times in the lower portion of the display zone.

The driver information center can also be configured with several different themes. Changing the theme is accomplished using the infotainment system faceplate settings page. The chosen theme is used for both the faceplate and the driver information center displays.

### Instrument Cluster Configuration (with RPO UHS, UDV)

The instrument cluster is highly interactive and reconfigurable. The operator can select from four different display configures and each of these configuration may contain one, two, or three separate display zones. Regardless of which configuration is selected, the vehicle odometer and PRNDL are always displayed in the lower left and lower right corners of the display.

The different display configurations are:

- Simple – The most basic of the available configurations, the Simple configuration includes four static information display zones and one interactive information display zone. The infotainment display zone is located on the left side of the display and displays phone, turn-by-turn navigation, and audio information. The speedometer and compass are located in the upper middle of the display. On the right side of the display is a graphical representation of the fuel level and fuel range.

  Below the speedometer, in the lower middle of the display, is the interactive information display zone. The information display zone contains multiple pages that can be scrolled through and selected using the steering wheel mounted driver information center switch.
- Performance – The Performance configuration contains three static information zones, one interactive information display zone, and one interactive application display zone. The speedometer and tachometer/fuel level gauge are located on the left and right of the display. In between the speedometer and tachometer is a static information display zone that displays current information while the operator scrolls through other pages in the interactive application display zone.

  In the middle of the speedometer is an interactive information display zone. This display zone has a limited number of selection and will only display a digital speedometer, a navigation map, a settings page with sub-menus, or a blank page.

  Below the tachometer and extending into the lower middle of the display is an interactive application display zone. The application display zone allows access to the navigation application, audio application, phone application, settings application, or information application. Unlike the information display zone that is located within the speedometer, the information application is fully featured and allows access to all available information pages.
- Balanced – The Balanced configuration contains three static information zones, two interactive information display zones, and one interactive application display zone. The tachometer is located on the left side of the display, the speedometer in the middle, and the coolant temperature/fuel level gauge on the right.

Located in the tachometer is an interactive information display zone.

In the speedometer is an interactive information display zone. This display zone has a limited number of selection and will only display a digital speedometer, a navigation map, a settings page with sub-menus, or a blank page.

An interactive application display zone is located in the coolant temperature/fuel level gauge. The application display zone allows access to the navigation application, audio application, phone application, or settings application.

- Enhanced – The Enhanced configuration contains four static information zones, two interactive information display zones, and one interactive application display zone. The speedometer in the upper middle of the display, a navigation map or compass in located on the upper left, and a fuel level gauge and fuel range display on the right.

  Located on the left and right lower portion of the display are interactive information display zones.

  An interactive application display zone is located in the middle of the display. The application display zone allows access to the navigation application, audio application, phone application, or settings application.

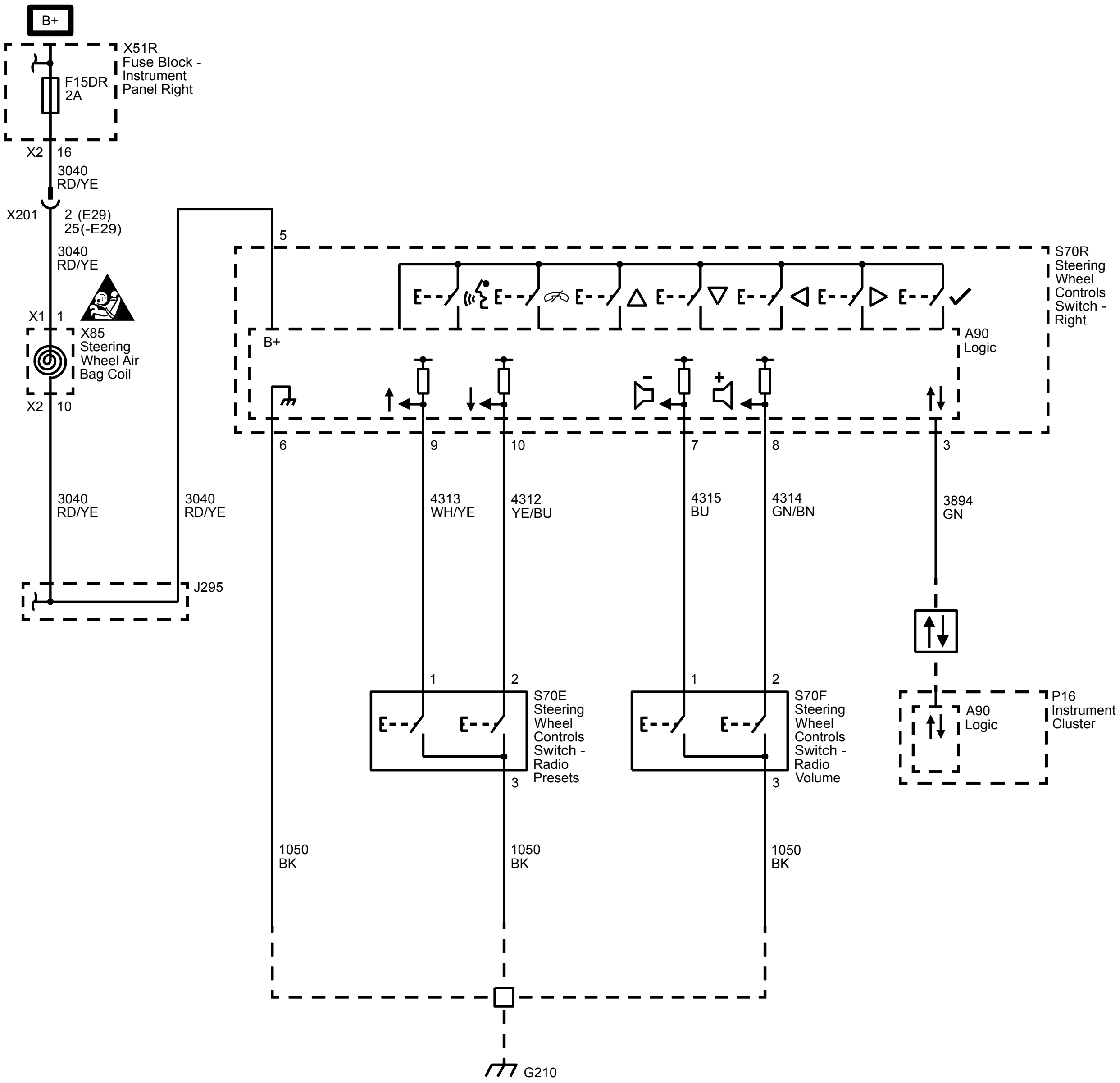
# Driver Information and Entertainment

## Secondary and Configurable Customer Controls

### Schematic and Routing Diagrams

### Steering Wheel Secondary/Configurable Control Schematics

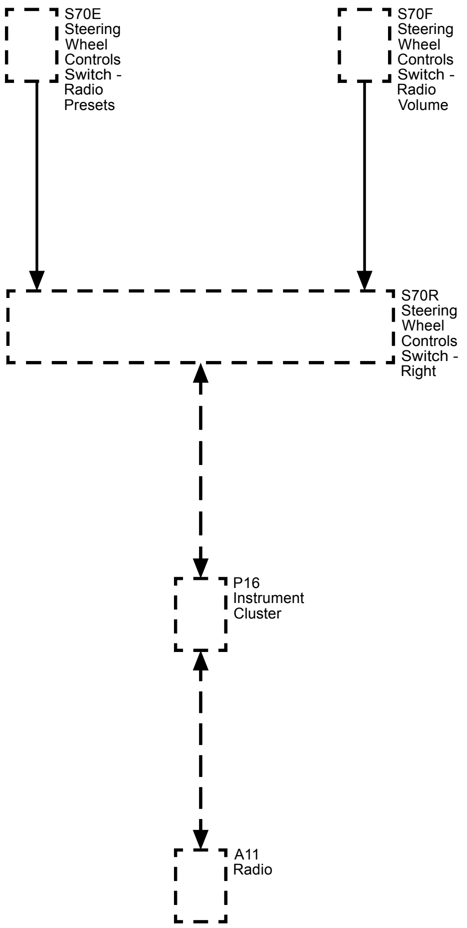
### Steering Wheel Radio Controls (UK3)


B+
X51R
Fuse Block -
Instrument
Panel Right
F15DR
2A
X2 16
3040
RD/YE
X201
2 (E29)
25(-E29)
3040
RD/YE
X1 1
X85
Steering
Wheel Air
Bag Coil
X2 10
3040
RD/YE
3040
RD/YE
J295
5
S70R
Steering
Wheel
Controls
Switch -
Right
A90
Logic
B+
6
9
10
7
8
3
4313
WH/YE
4312
YE/BU
4315
BU
4314
GN/BN
3894
GN
1
2
S70E
Steering
Wheel
Controls
Switch -
Radio
Presets
3
1
2
S70F
Steering
Wheel
Controls
Switch -
Radio
Volume
3
A90
Logic
P16
Instrument
Cluster
1050
BK
1050
BK
1050
BK
G210

# Description and Operation

## Steering Wheel Controls Description and Operation

### Secondary Controls Block Diagram


S70E Steering Wheel Controls Switch - Radio Presets
S70F Steering Wheel Controls Switch - Radio Volume
S70R Steering Wheel Controls Switch - Right
P16 Instrument Cluster
A11 Radio

The steering wheel control switches duplicate the function of the primary controls of the associated component, through a network of momentary contact switches.

The Steering Wheel Controls are divided into a right-hand set and left-hand set. The right-hand switch is connected to the IPC LIN serial data and provides input from the left-hand, left-hand rear, and right-hand rear switches

The right-hand switch controller consists of UP/DOWN/LEFT/RIGHT directional, center “select” , Push-to-Talk, and Mute buttons. The LEFT/RIGHT buttons navigate the display regions of the cluster. The UP/DOWN buttons navigate the menus. The right-hand rear switch consists of volume up and volume down buttons. The left-hand rear switch consists of favorite up and favorite down buttons.

# Engine/Propulsion

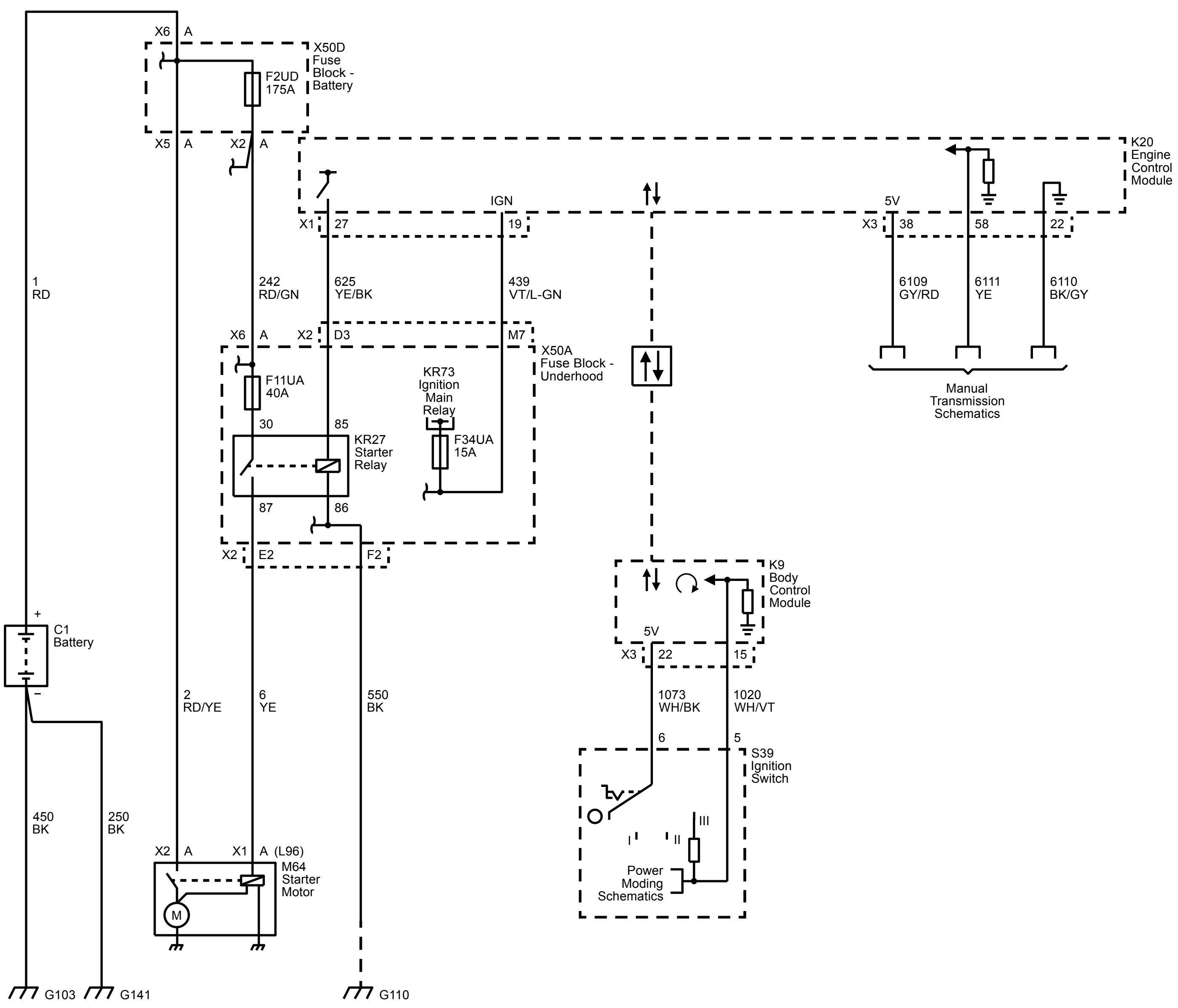
## 12 V Starting and Charging

### Schematic and Routing Diagrams

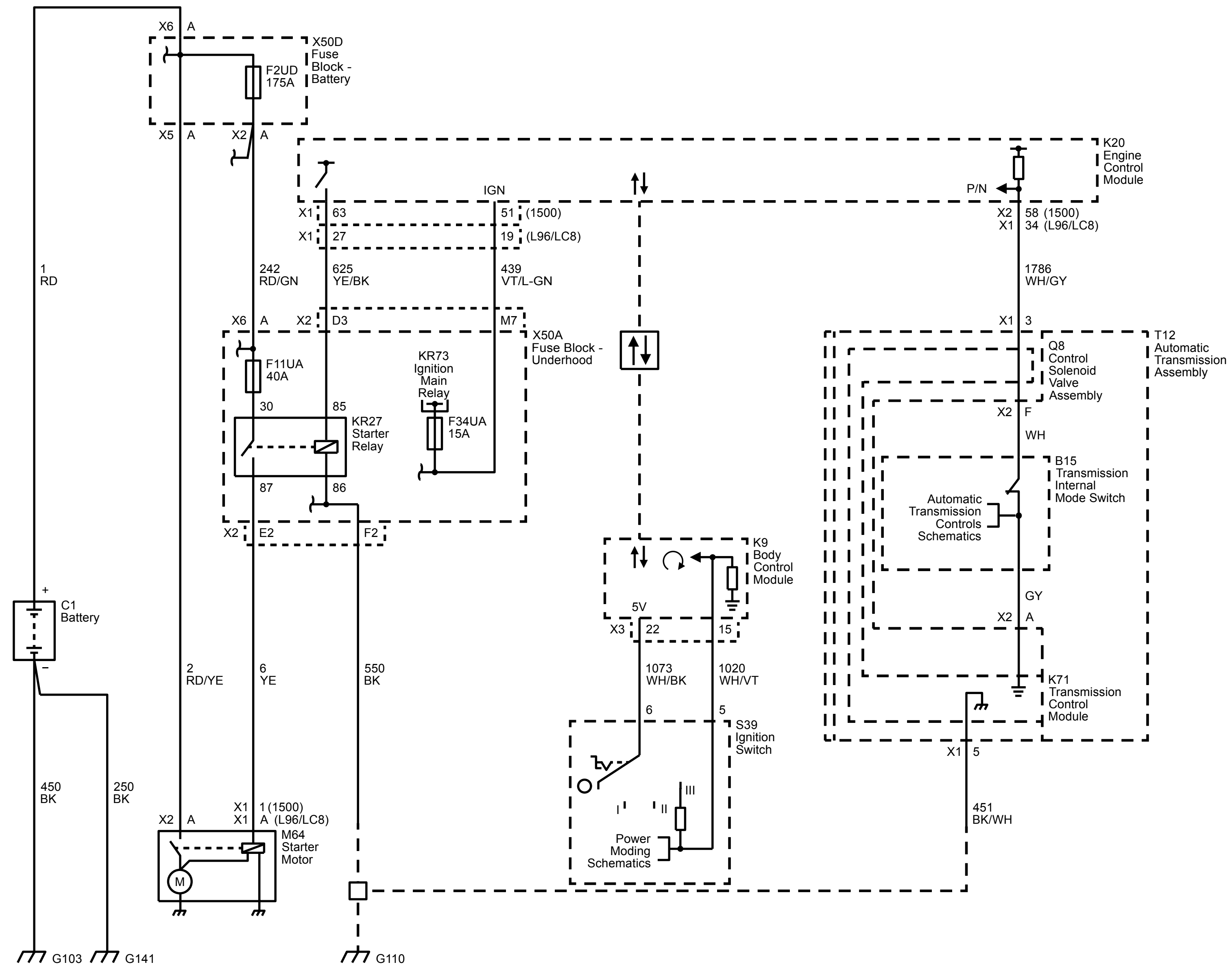
### Starting and Charging Schematics

### Starting - Manual Transmission (M2P or MQ7)

LOC
DESC

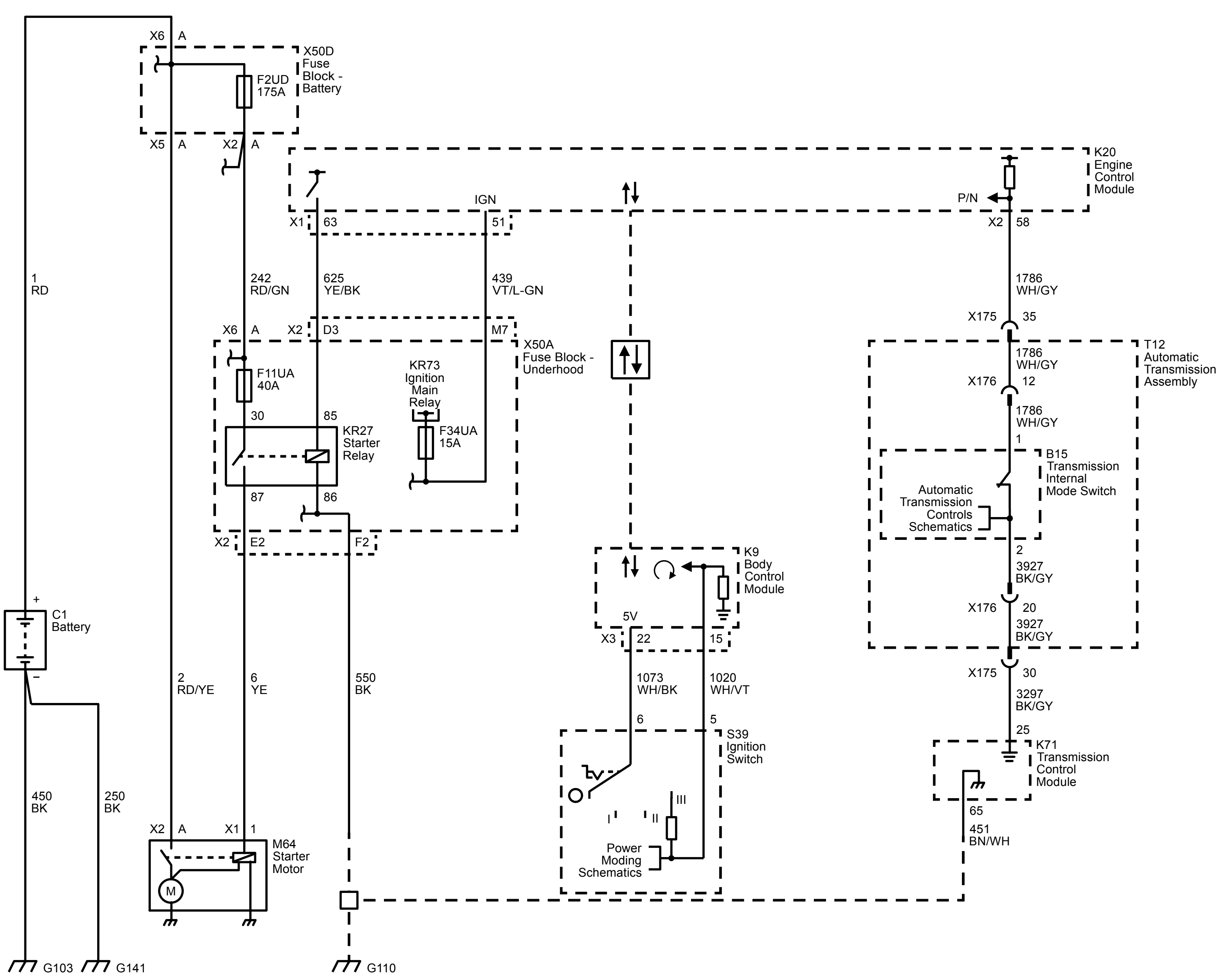

X6
A
X50D
Fuse
Block -
Battery
F2UD
175A
X5
A
X2
A
K20
Engine
Control
Module
IGN
5V
X1
27
19
X3
38
58
22
1
RD
242
RD/GN
625
YE/BK
439
VT/L-GN
6109
GY/RD
6111
YE
6110
BK/GY
X6
A
X2
D3
M7
X50A
Fuse Block -
Underhood
F11UA
40A
KR73
Ignition
Main
Relay
F34UA
15A
30
85
KR27
Starter
Relay
87
86
Manual
Transmission
Schematics
X2
E2
F2
K9
Body
Control
Module
+
C1
Battery
–
5V
X3
22
15
2
RD/YE
6
YE
550
BK
1073
WH/BK
1020
WH/VT
6
5
S39
Ignition
Switch
III
I
II
Power
Moding
Schematics
450
BK
250
BK
X2
A
X1
A
(L96)
M64
Starter
Motor
M
G103
G141
G110

# Starting - Automatic Transmission (MYC or MYD)

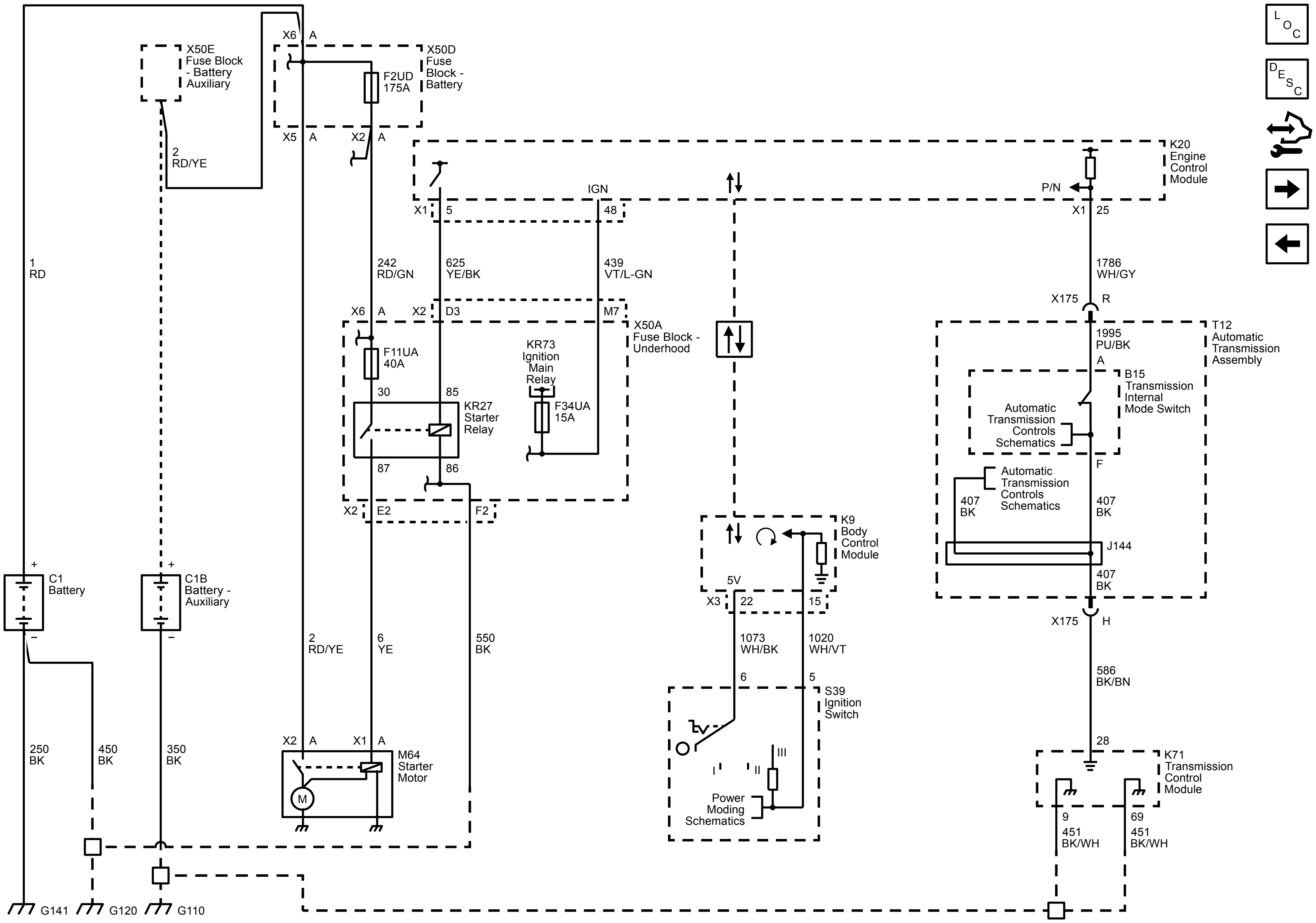

X6
A
X50D Fuse Block - Battery
F2UD 175A
X5
A
X2
A
K20 Engine Control Module
IGN
P/N
X1
63
51
(1500)
X1
27
19
(L96/LC8)
X2
58 (1500)
X1
34 (L96/LC8)
1 RD
242 RD/GN
625 YE/BK
439 VT/L-GN
1786 WH/GY
X6
A
X2
D3
M7
X50A Fuse Block - Underhood
F11UA 40A
KR73 Ignition Main Relay
30
85
KR27 Starter Relay
F34UA 15A
87
86
X2
E2
F2
X1
3
Q8 Control Solenoid Valve Assembly
T12 Automatic Transmission Assembly
X2
F
WH
B15 Transmission Internal Mode Switch
Automatic Transmission Controls Schematics
GY
X2
A
K71 Transmission Control Module
X1
5
451 BK/WH
K9 Body Control Module
5V
X3
22
15
1073 WH/BK
1020 WH/VT
6
5
S39 Ignition Switch
I
II
III
Power Moding Schematics
+
C1 Battery
-
2 RD/YE
6 YE
550 BK
450 BK
250 BK
X2
A
X1
1 (1500)
X1
A (L96/LC8)
M64 Starter Motor
M
G103
G141
G110

# Starting - Automatic Transmission (M5U)

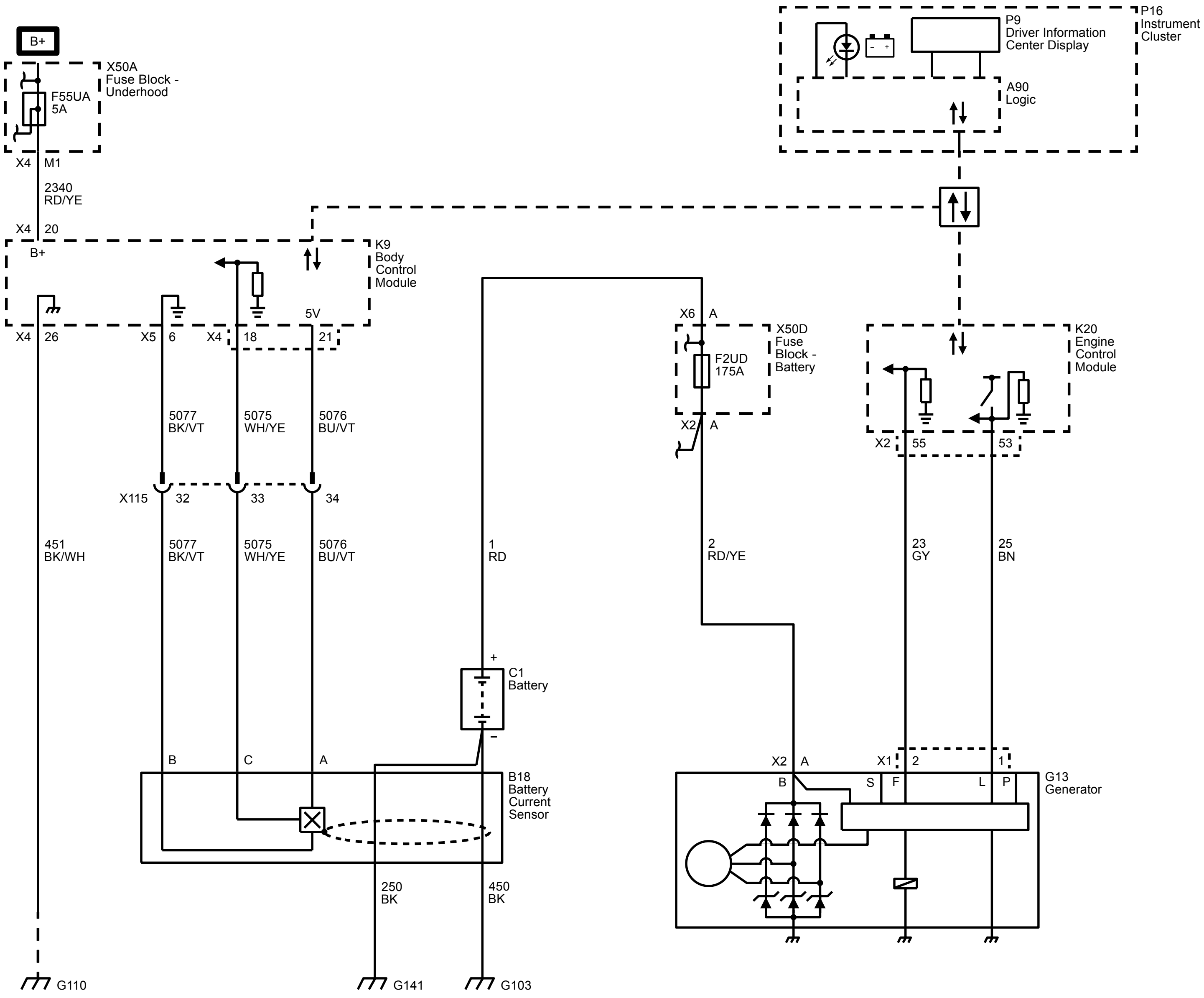
LOC
DESC


X6
A
X50D
Fuse
Block -
Battery
F2UD
175A
X5
A
X2
A
K20
Engine
Control
Module
IGN
P/N
X1
63
51
X2
58
1
RD
242
RD/GN
625
YE/BK
439
VT/L-GN
1786
WH/GY
X175
35
X6
A
X2
D3
M7
X50A
Fuse Block -
Underhood
T12
Automatic
Transmission
Assembly
1786
WH/GY
X176
12
F11UA
40A
KR73
Ignition
Main
Relay
1786
WH/GY
30
85
F34UA
15A
1
KR27
Starter
Relay
B15
Transmission
Internal
Mode Switch
Automatic
Transmission
Controls
Schematics
87
86
X2
E2
F2
2
K9
Body
Control
Module
3927
BK/GY
+
C1
Battery
5V
X176
20
X3
22
15
3927
BK/GY
−
X175
30
2
RD/YE
6
YE
550
BK
1073
WH/BK
1020
WH/VT
3297
BK/GY
6
5
25
S39
Ignition
Switch
K71
Transmission
Control
Module
450
BK
250
BK
I
II
III
65
X2
A
X1
1
451
BN/WH
M64
Starter
Motor
Power
Moding
Schematics
M
G103
G141
G110

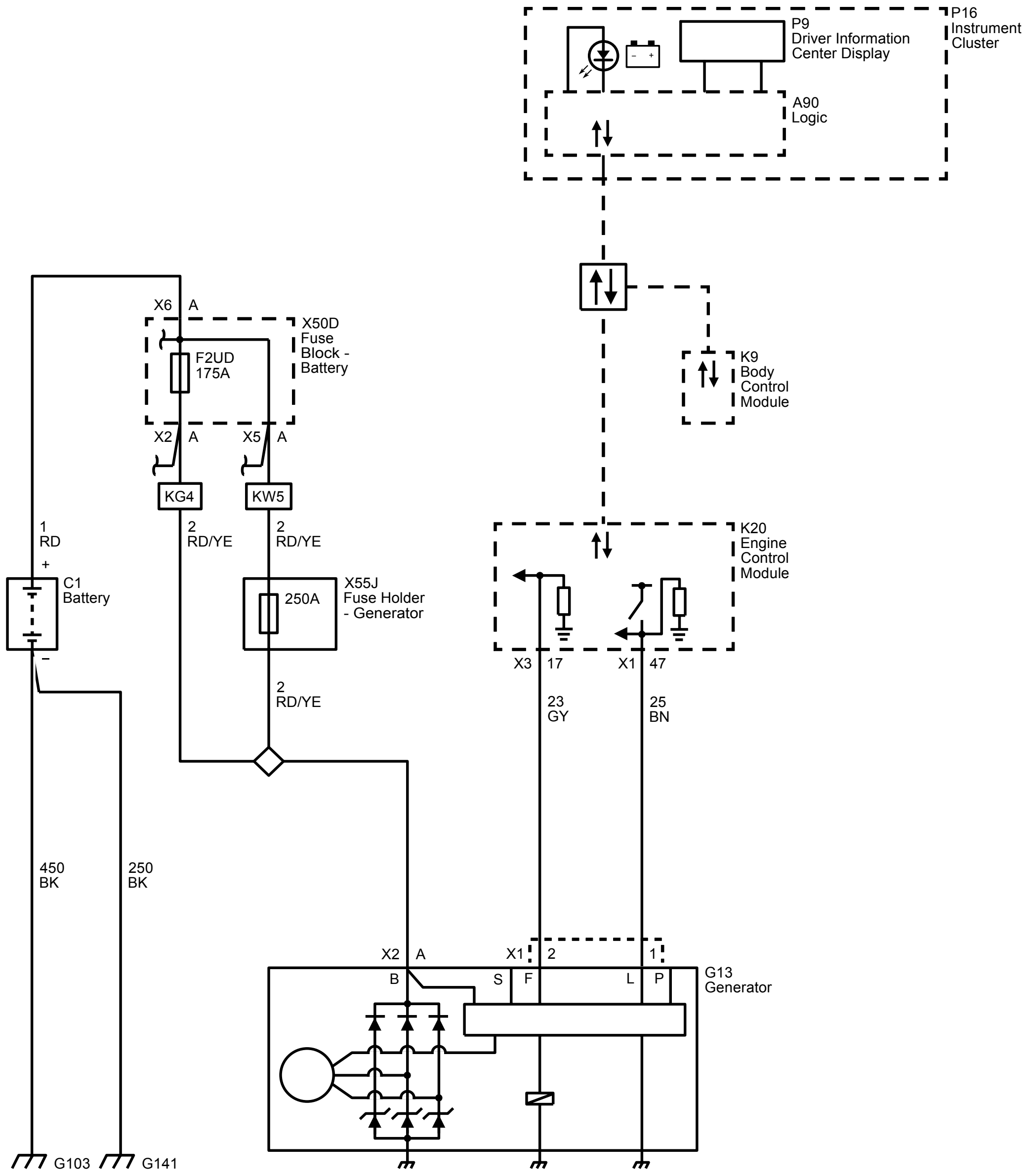
# Starting - Automatic Transmission (MW7)


X50E Fuse Block - Battery Auxiliary
X6 A
X50D Fuse Block - Battery
F2UD 175A
X5 A
X2 A
2 RD/YE
K20 Engine Control Module
IGN
P/N
X1 5
48
X1 25
1 RD
242 RD/GN
625 YE/BK
439 VT/L-GN
1786 WH/GY
X175 R
X6 A
X2 D3
M7
X50A Fuse Block - Underhood
KR73 Ignition Main Relay
F11UA 40A
30
85
KR27 Starter Relay
F34UA 15A
87
86
X2 E2
F2
T12 Automatic Transmission Assembly
1995 PU/BK
A
B15 Transmission Internal Mode Switch
Automatic Transmission Controls Schematics
F
Automatic Transmission Controls Schematics
407 BK
407 BK
J144
407 BK
X175 H
K9 Body Control Module
5V
X3 22
15
+
C1 Battery
+
C1B Battery - Auxiliary
2 RD/YE
6 YE
550 BK
1073 WH/BK
1020 WH/VT
586 BK/BN
6
5
S39 Ignition Switch
I
II
III
Power Moding Schematics
250 BK
450 BK
350 BK
X2 A
X1 A
M64 Starter Motor
M
28
K71 Transmission Control Module
9
69
451 BK/WH
451 BK/WH
G141
G120
G110

## Charging (1500)

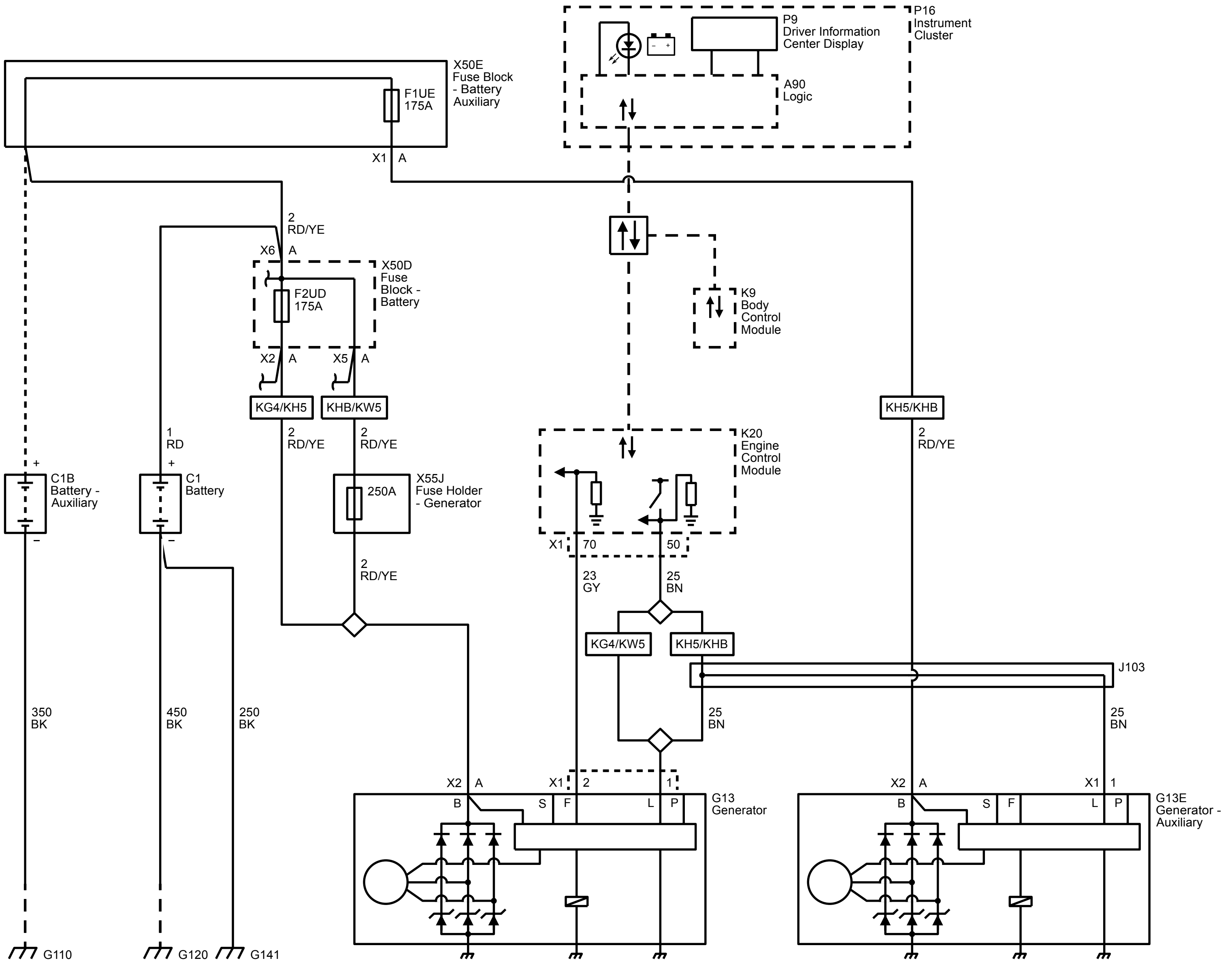

B+
X50A
Fuse Block - Underhood
F55UA
5A
X4
M1
2340
RD/YE
X4
20
B+
K9
Body
Control
Module
5V
X4
26
X5
6
X4
18
21
5077
BK/VT
5075
WH/YE
5076
BU/VT
X115
32
33
34
451
BK/WH
5077
BK/VT
5075
WH/YE
5076
BU/VT
P9
Driver Information
Center Display
P16
Instrument
Cluster
A90
Logic
1
RD
+
C1
Battery
−
B
C
A
B18
Battery
Current
Sensor
250
BK
450
BK
G110
G141
G103
X6
A
X50D
Fuse
Block -
Battery
F2UD
175A
X2
A
2
RD/YE
K20
Engine
Control
Module
X2
55
53
23
GY
25
BN
X2
A
X1
2
1
B
S
F
L
P
G13
Generator

# Charging (L96 or LC8)


P16
Instrument
Cluster
P9
Driver Information
Center Display
A90
Logic
K9
Body
Control
Module
X6
A
X50D
Fuse
Block -
Battery
F2UD
175A
X2
A
X5
A
KG4
KW5
1
RD
+
C1
Battery
−
2
RD/YE
2
RD/YE
250A
X55J
Fuse Holder
- Generator
2
RD/YE
K20
Engine
Control
Module
X3
17
X1
47
23
GY
25
BN
450
BK
250
BK
X2
A
X1
2
1
B
S
F
L
P
G13
Generator
G103
G141

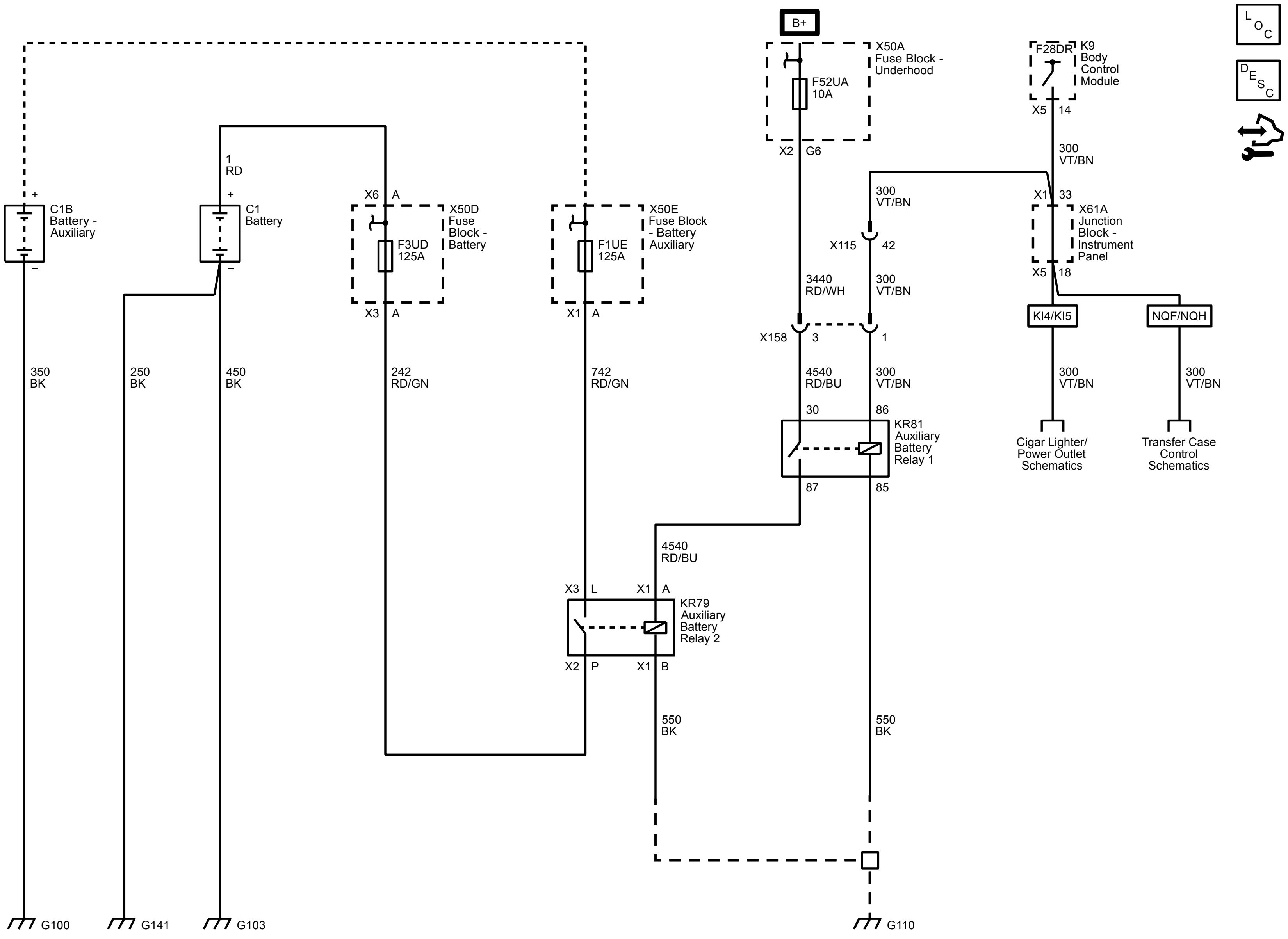
LOC
DESC

# Charging (L5P)


P16
Instrument
Cluster
P9
Driver Information
Center Display
A90
Logic
X50E
Fuse Block
- Battery
Auxiliary
F1UE
175A
X1
A
2
RD/YE
X6
A
X50D
Fuse
Block -
Battery
F2UD
175A
X2
A
X5
A
K9
Body
Control
Module
KG4/KH5
KHB/KW5
KH5/KHB
1
RD
+
C1
Battery
+
C1B
Battery -
Auxiliary
−
−
2
RD/YE
2
RD/YE
X55J
Fuse Holder
- Generator
250A
2
RD/YE
K20
Engine
Control
Module
X1
70
50
23
GY
25
BN
KG4/KW5
KH5/KHB
J103
350
BK
450
BK
250
BK
25
BN
25
BN
X2
A
X1
2
1
B
S
F
L
P
G13
Generator
X2
A
X1
1
B
S
F
L
P
G13E
Generator -
Auxiliary
G110
G120
G141

# Auxiliary Battery Schematics

## Auxiliary Battery Relays (K4B or K4D)



B+
X50A Fuse Block - Underhood
F52UA 10A
X2 G6
F28DR
K9 Body Control Module
X5 14
300 VT/BN
X1 33
X61A Junction Block - Instrument Panel
X5 18
KI4/KI5
NQF/NQH
300 VT/BN
300 VT/BN
Cigar Lighter/ Power Outlet Schematics
Transfer Case Control Schematics
300 VT/BN
X115 42
3440 RD/WH
300 VT/BN
X158 3
1
4540 RD/BU
300 VT/BN
30
86
KR81 Auxiliary Battery Relay 1
87
85
4540 RD/BU
X3 L
X1 A
KR79 Auxiliary Battery Relay 2
X2 P
X1 B
550 BK
550 BK
G110
+
C1B Battery - Auxiliary
−
+
1 RD
C1 Battery
−
X6 A
X50D Fuse Block - Battery
F3UD 125A
X3 A
X50E Fuse Block - Battery Auxiliary
F1UE 125A
X1 A
350 BK
250 BK
450 BK
242 RD/GN
742 RD/GN
G100
G141
G103
LOC
DESC

# Description and Operation

## Battery Description and Operation

**Warning: Batteries produce explosive gases, contain corrosive acid, and supply levels of electrical current high enough to cause burns. Therefore, to reduce the risk of personal injury when working near a battery:**

- **Always shield your eyes and avoid leaning over the battery whenever possible.**
- **Do not expose the battery to open flames or sparks.**
- **Do not allow the battery electrolyte to contact the eyes or the skin. Flush immediately and thoroughly any contacted areas with water and get medical help.**
- **Follow each step of the jump starting procedure in order.**
- **Treat both the booster and the discharged batteries carefully when using the jumper cables.**

Batteries that are no longer wanted must be disposed of by an approved battery recycler and must never be thrown in the trash or sent to a landfill.

Batteries that are not part of the vehicle itself, not the battery under the hood, must only be transported on public streets for business purposes via approved hazardous material transportation procedures.

Battery storage, charging and testing facilities in repair shops must meet various requirements for ventilation, safety equipment, material segregation, etc.

The maintenance free battery is standard. There are no vent plugs in the cover. The battery is completely sealed except for 2 small vent holes in the side. These vent holes allow the small amount of gas that is produced in the battery to escape.

The battery has 3 functions as a major source of energy:

- Engine cranking
- Voltage stabilizer
- Alternate source of energy with generator overload

### Battery Low Start Vehicle Message

The body control module (BCM) monitors battery positive voltage to determine battery state of charge. If one or more of the BCM battery positive voltage terminals measure less than approximately 11.6V compared to the BCM ground circuits, this message will display and four chimes may sound. Start the vehicle immediately. If the vehicle is not started and the battery continues to discharge, the climate controls, heated seats, and audio systems will shut off and the vehicle may require a jump start. These systems will function again after the vehicle is started.

### Battery Ratings

A battery has 2 ratings:

- Cold cranking amperage
- Amperage hours

When a battery is replaced use a battery with similar ratings. See battery specification label on the original battery.

### Amperage Hours

The amperage hour rating tells you how much amperage is available when discharged evenly over a 20 hour period. The amperage hour rating is cumulative, so in order to know how many constant amperage the battery will output for 20 h, you have to divide the amperage hour rating by 20. Example: If a battery has an amperage hour rating of 74, dividing by 20 = 3.75. Such a battery can carry a 3.75 A load for 20 hours before dropping to 10.5 V. (10.5 V is the fully discharged level, at which point the battery needs to be recharged.) A battery with an amperage hour rating of 55 will carry a 2.75 A load for 20 hours before dropping to 10.5 V.

### Cold Cranking Amperage

The cold cranking amperage is an indication of the ability of the battery to crank the engine at cold temperatures. The cold cranking amperage rating is the minimum amperage the battery must maintain for 30 seconds at −18°C (0°F) while maintaining at least 7.2 V. See battery label for the cold cranking amperage rating of this battery.

# Charging System Description and Operation

## Electrical Power Management Overview

The electrical power management system is designed to monitor and control the charging system and send diagnostic messages to alert the driver of possible problems with the battery and generator. This electrical power management system primarily utilizes existing on-board computer capability to maximize the effectiveness of the generator, to manage the load, improve battery state-of-charge and life, and minimize the system's impact on fuel economy. The electrical power management system performs 3 functions:

- It monitors the battery voltage and estimates the battery condition.
- It takes corrective actions by boosting idle speeds, and adjusting the regulated voltage.
- It performs diagnostics and driver notification.

The battery condition is estimated during ignition-off and during ignition-on. During ignition-off the state-of-charge of the battery is determined by measuring the open-circuit voltage. The state-of-charge is a function of the acid concentration and the internal resistance of the battery, and is estimated by reading the battery open circuit voltage when the battery has been at rest for several hours.

The state-of-charge can be used as a diagnostic tool to tell the customer or the dealer the condition of the battery. Throughout ignition-on, the algorithm continuously estimates state-of-charge based on adjusted net amp hours, battery capacity, initial state-of-charge, and temperature.

While running, the battery degree of discharge is primarily determined by a battery current sensor, which is integrated to obtain net amp hours.

In addition, the electrical power management function is designed to perform regulated voltage control to improve battery state-of-charge, battery life, and fuel economy. This is accomplished by using knowledge of the battery state-of-charge and temperature to set the charging voltage to an optimum battery voltage level for recharging without detriment to battery life.

The Charging System Description and Operation is divided into 3 sections. The first section describes the charging system components and their integration into the electrical power management. The second section describes charging system operation. The third section describes the instrument panel cluster operation of the charge indicator, driver information center messages, and voltmeter operation.

## Charging System Components

### Generator

The generator is a serviceable component. If there is a diagnosed failure of the generator it must be replaced as an assembly. The engine drive belt drives the generator. When the rotor is spun it induces an alternating current (AC) into the stator windings. The AC voltage is then sent through a series of diodes for rectification. The rectified voltage has been converted into a direct current (DC) for use by the vehicles electrical system to maintain electrical loads and the battery charge. The voltage regulator integral to the generator controls the output of the generator. It is not serviceable. The voltage regulator controls the amount of current provided to the rotor. If the generator has field control circuit failure, the generator defaults to an output voltage of 13.8 V.

### Body Control Module (BCM)

The body control module (BCM) is a GMLAN device. It communicates with the engine control module (ECM) and the instrument panel cluster for electrical power management (electrical power management) operation. The BCM determines the output of the generator and sends the information to the ECM for control of the generator turn on signal circuit. It monitors the generator field duty cycle signal circuit information sent from the ECM for control of the generator. It monitors a battery current sensor, the battery positive voltage circuit, and estimated battery temperature to determine battery state of charge. The BCM performs idle boost.

### Battery Current Sensor

The battery current sensor is a serviceable component that is connected to either the negative or positive battery cable at the battery. The battery current sensor is a 3-wire hall effect current sensor. The battery current sensor monitors the battery current. It directly inputs to the BCM. It creates a 5-volt pulse width modulation (PWM) signal of 128 Hz with a duty cycle of 0–100 percent. Normal duty cycle is between 5–95 percent. Between 0–5 percent and 95–100 percent are for diagnostic purposes.

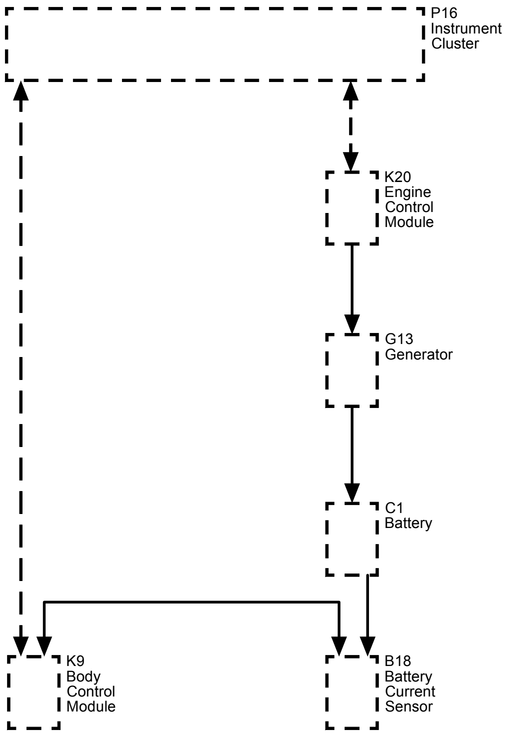
### Engine Control Module (ECM)

When the engine is running, the generator turn-on signal is sent to the generator from the ECM, turning on the regulator. The generator's voltage regulator controls current to the rotor, thereby controlling the output voltage. The rotor current is proportional to the electrical pulse width supplied by the regulator. When the engine is started, the regulator senses generator rotation by detecting AC voltage at the stator through an internal wire. Once the engine is running, the regulator varies the field current by controlling the pulse width. This regulates the generator output voltage for proper battery charging and electrical system operation. The generator field duty terminal is connected internally to the voltage regulator and externally to the ECM. When the voltage regulator detects a charging system problem, it grounds this circuit to signal the ECM that a problem exists. The ECM monitors the generator field duty cycle signal circuit, and receives control decisions based on information from the BCM.

### Instrument Panel Cluster

The instrument panel cluster provides the customer notification in case a concern with the charging system. There are 2 means of notification, a charge indicator and a driver information center message of SERVICE BATTERY CHARGING SYSTEM if equipped.

## Charging System Block Diagram


P16
Instrument
Cluster
K20
Engine
Control
Module
G13
Generator
C1
Battery
K9
Body
Control
Module
B18
Battery
Current
Sensor

## Charging System Operation

The purpose of the charging system is to maintain the battery charge and vehicle loads. There are 6 modes of operation and they include:

- Battery Sulfation Mode
- Charge Mode
- Fuel Economy Mode
- Headlamp Mode
- Start Up Mode
- Voltage Reduction Mode

The engine control module (ECM) controls the generator through the generator turn ON signal circuit. The ECM monitors the generator performance though the generator field duty cycle signal circuit. The signal is a pulse width modulation (PWM) signal of 128 Hz with a duty cycle of 0–100 percent. Normal duty cycle is between 5–95 percent. Between 0–5 percent and 95–100 percent are for diagnostic purposes. The following table shows the commanded duty cycle and output voltage of the generator:

| Commanded Duty Cycle | Generator Output Voltage |
|---|---|
| 10% | 11 V |
| 20% | 11.56 V |
| 30% | 12.12 V |
| 40% | 12.68 V |
| 50% | 13.25 V |
| 60% | 13.81 V |
| 70% | 14.37 V |

| | |
|---|---|
| 80% | 14.94 V |
| 90% | 15.5 V |

The generator provides a feedback signal of the generator voltage output through the generator field duty cycle signal circuit to the ECM. This information is sent to the body control module (BCM). The signal is PWM signal of 128 Hz with a duty cycle of 0–100 percent. Normal duty cycle is between 5–99 percent. Between 0–5 percent and 100 percent are for diagnostic purposes.

### Battery Sulfation Mode

The BCM will enter this mode when the interpreted generator output voltage is less than 13.2 V for 45 minutes. When this condition exists the BCM will enter Charge Mode for 2–3 minutes. The BCM will then determine which mode to enter depending on voltage requirements.

### Charge Mode

The BCM will enter Charge Mode when ever one of the following conditions are met.

- The wipers are ON for more than 3 seconds.
- GMLAN (Climate Control Voltage Boost Mode Request) is true, as sensed by the HVAC control head. High speed cooling fan, rear defogger and HVAC high speed blower operation can cause the BCM to enter the Charge Mode.
- The estimated battery temperature is less than 0°C (32°F).
- Battery State of Charge is less than 80 percent.
- Vehicle speed is greater than 145 km/h (90 mph)
- Current sensor fault exists.
- System voltage was determined to be below 12.56 V

When any one of these conditions is met, the system will set targeted generator output voltage to a charging voltage between 13.9–15.5 V, depending on the battery state of charge and estimated battery temperature.

### Fuel Economy Mode

The BCM will enter Fuel Economy Mode when the estimated battery temperature is at least 0°C (32°F) but less than or equal to 80°C (176°F), the calculated battery current is less than 15 amperes and greater than −8 amperes, and the battery state-of-charge is greater than or equal to 80 percent. Its targeted generator output voltage is the open circuit voltage of the battery and can be between 12.5–13.1 V. The BCM will exit this mode and enter Charge Mode when any of the conditions described above are present.

### Headlamp Mode

The BCM will enter Headlamp Mode when ever the headlamps are ON (high or low beams). Voltage will be regulated between 13.9–14.5 V.

### Start Up Mode

When the engine is started the BCM sets a targeted generator output voltage of 14.5 V for 30 seconds.

### Voltage Reduction Mode

The BCM will enter Voltage Reduction Mode when the calculated ambient air temperature is above 0°C (32°F). The calculated battery current is less than 1 ampere and greater than −7 amperes, and the generator field duty cycle is less than 99 percent. Its targeted generator output voltage is 12.9 V. The BCM will exit this mode once the criteria are met for Charge Mode.

### Instrument Panel Cluster Operation

#### Charge Indicator Operation

The instrument panel cluster illuminates the charge indicator and displays a warning message in the driver information center if equipped, when the one or more of the following occurs:

- The engine control module (ECM) detects that the generator output is less than 11 V or greater than 16 V. The instrument panel cluster receives a GMLAN message from the ECM requesting illumination.
- The instrument panel cluster determines that the system voltage is less than 11 V or greater than 16 V for more than 30 seconds. The instrument panel cluster receives a GMLAN message from the body control module (BCM) indicating there is a system voltage range concern.
- The instrument panel cluster performs the displays test at the start of each ignition cycle. The indicator illuminates for approximately 3 seconds.

#### Display Message: BATTERY NOT CHARGING SERVICE CHARGING SYSTEM or SERVICE BATTERY CHARGING SYSTEM

The BCM and the ECM will send a serial data message to the driver information center for the BATTERY NOT CHARGING SERVICE CHARGING SYSTEM or SERVICE BATTERY CHARGING SYSTEM message to be displayed. It is commanded ON when a charging system DTC is a current DTC. The message is turned OFF when the conditions for clearing the DTC have been met.

## Electrical Power Management Description and Operation (Gasoline)

The electrical power management is used to monitor and control the charging system and alert the driver of possible problems within the charging system. The electrical power management system makes the most efficient use of the generator output, improves the battery state-of-charge, extends battery life, and manages system electrical loads.

The load shed operation is a means of reducing electrical loads during a low voltage or low battery state-of-charge condition.

The idle boost operation is a means of improving generator performance during a low voltage or low battery state-of-charge condition.

Each electrical power management function, either idle boost or load shed, is discrete. No two functions are active at the same time. Idle boost is activated in incremental steps, idle boost 1 must be active before idle boost 2 can be active. The criteria used by the body control module (BCM) to regulate electrical power management are outlined below:

| Function | Battery Temperature Calculation | Battery Voltage Calculation | Amp-Hour Calculation | Action Taken |
|---|---|---|---|---|
| Idle Boost 1 Start | Less Than −15°C (5°F) | Less Than 13 V | — | First level Idle boost requested |
| Idle Boost 1 Start | — | — | Battery has a net loss greater than 0.6 AH | First level Idle boost requested |
| Idle Boost 1 Start | — | Less Than 10.9 V | — | First level Idle boost requested |
| Idle Boost 1 End | Greater Than −15°C (5°F) | Greater Than −12 V | Battery has a net loss less than 0.2 AH | First level Idle boost request cancelled |
| Load Shed 1 Start | — | — | Battery has a net loss of 4 AH | Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 20% of their cycle |
| Load Shed 1 Start | — | Less Than 10.9 V | — | Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 20% of their cycle |
| Load Shed 1 End | — | Greater Than 12 V | Battery has a net loss of less than 2 AH | Clear Load Shed 1 |
| Idle Boost 2 Start | — | — | Battery has a net loss greater than 1.6 AH | Second level Idle boost requested |
| Idle Boost 2 Start | — | Less Than 10.9 V | — | Second level Idle boost requested |
| Idle Boost 2 End | — | Greater Than 12 V | Battery has a net loss less than 0.8 AH | Second level Idle boost request cancelled |
| Idle Boost 3 Start | — | — | Battery has a net loss of 10.0 AH | Third level Idle boost requested |
| Idle Boost 3 Start | — | Less Than 10.9 V | — | Third level Idle boost requested |
| Idle Boost 3 End | — | Greater Than 12 V | Battery has a net loss of less than 6.0 AH | Third level Idle boost request cancelled |
| Load Shed 2 Start | — | Less Than 10.9 V | Battery has a net loss greater than 12 AH | Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC |

| | | | | |
|---|---|---|---|---|
| Load Shed 2 Start | — | Less Than 10.9 V | — | Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC |
| Load Shed 2 End | — | Greater Than 12.6 V | Battery has a net loss of less than 10.5 AH | Clear Load Shed 2 |
| Load Shed 3 Start | — | Less Than 11.9 V | Battery has a net loss greater than 20 AH | Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 100% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC |
| Load Shed 3 End | — | Greater Than 12.6 V | Battery has a net loss of less than 15 AH | Clear Load Shed 3 |

## Electrical Power Management Description and Operation (Diesel)

The electrical power management is used to monitor and control the charging system and alert the driver of possible problems within the charging system. The electrical power management system makes the most efficient use of the generator output, improves the battery state-of-charge, extends battery life, and manages system electrical loads.

The load shed operation is a means of reducing electrical loads during a low voltage or low battery state-of-charge condition.

The idle boost operation is a means of improving generator performance during a low voltage or low battery state-of-charge condition. Idle boost consists of three steps: idle boost 1, idle boost 2, and idle boost 3 (approximately 750, 900, and 1050 rpm respectively). Idle boost is activated in incremental steps, idle boost 1 must be active before idle boost 2 can be active.

Each electrical power management function, either idle boost or load shed, is discrete. No two functions are active at the same time. The criteria used by the body control module (BCM) to regulate electrical power management are outlined below:

| Function | Battery Temperature Calculation | Battery Voltage Calculation | Amp-Hour Calculation | Action Taken |
|---|---|---|---|---|
| Idle Boost 1 Start | Less Than −15°C (5°F) | Less Than 13 V | — | First level Idle boost requested |
| Idle Boost 1 Start | — | — | Battery has a net loss greater than 0.6 AH | First level Idle boost requested |
| Idle Boost 1 Start | — | Less Than 10.9 V | — | First level Idle boost requested |
| Idle Boost 1 End | Greater Than −15°C (5°F) | Greater Than −12 V | Battery has a net loss less than 0.2 AH | First level Idle boost request cancelled |
| Load Shed 1 Start | — | — | Battery has a net loss of 4 AH | Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 20% of their cycle |
| Load Shed 1 Start | — | Less Than 10.9 V | — | Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 20% of their cycle |
| Load Shed 1 End | — | Greater Than 12 V | Battery has a net loss of less than 2 AH | Clear Load Shed 1 |
| Idle Boost 2 Start | — | — | Battery has a net loss greater than 1.6 AH | Second level Idle boost requested |
| Idle Boost 2 Start | — | Less Than 10.9 V | — | Second level Idle boost requested |
| Idle Boost 2 End | — | Greater Than 12 V | Battery has a net loss less than 0.8 AH | Second level Idle boost request cancelled |
| Idle Boost 3 Start | — | — | Battery has a net loss of 10.0 AH | Third level Idle boost requested |
| Idle Boost 3 Start | — | Less Than 10.9 V | — | Third level Idle boost requested |
| Idle Boost 3 End | — | Greater Than 12 V | Battery has a net loss of less than 6.0 AH | Third level Idle boost request cancelled |
| Load Shed 2 Start | — | Less Than 10.9 V | Battery has a net loss greater than 12 AH | Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC |

| | | | | |
|---|---|---|---|---|
| Load Shed 2 Start | — | Less Than 10.9 V | — | Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 50% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC |
| Load Shed 2 End | — | Greater Than 12.6 V | Battery has a net loss of less than 10.5 AH | Clear Load Shed 2 |
| Load Shed 3 Start | — | Less Than 11.9 V | Battery has a net loss greater than 20 AH | Rear Defrost, Heated Mirrors, Heated Seats cycled OFF for 100% of their cycle. The BATTERY SAVER ACTIVE message will be displayed on the DIC |
| Load Shed 3 End | — | Greater Than 12.6 V | Battery has a net loss of less than 15 AH | Clear Load Shed 3 |

## Starting System Description and Operation

The starter motors are non-repairable starter motors. They have pole pieces that are arranged around the armature. Both solenoid windings are energized. The pull-in winding circuit is completed to the ground through the starter motor. The windings work together magnetically to pull and hold in the plunger. The plunger moves the shift lever. This action causes the starter drive assembly to rotate on the armature shaft spline as it engages with the flywheel ring gear on the engine. Moving at the same time, the plunger also closes the solenoid switch contacts in the starter solenoid. Full battery voltage is applied directly to the starter motor and it cranks the engine.

As soon as the solenoid switch contacts close, current stops flowing thorough the pull-in winding because battery voltage is applied to both ends of the windings. The hold-in winding remains energized. Its magnetic field is strong enough to hold the plunger, shift lever, starter drive assembly, and solenoid switch contacts in place to continue cranking the engine. When the engine starts, pinion overrun protects the armature from excessive speed until the switch is opened.

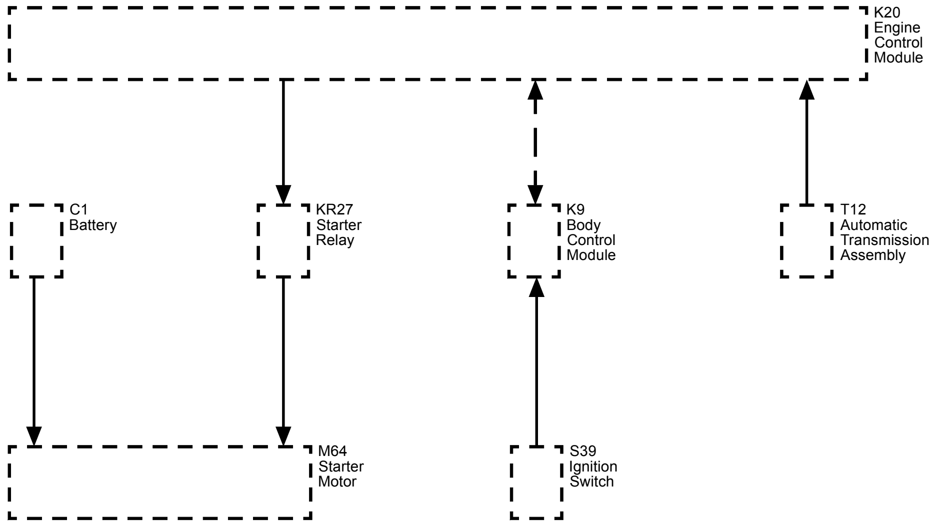
When the ignition switch is released from the START position, the START relay opens and battery voltage is removed from the starter solenoid S terminal. Current flows from the motor contacts through both windings to the ground at the end of the hold-in winding. However, the direction of the current flow through the pull-in winding is now opposite the direction of the current flow when the winding was first energized.

The magnetic fields of the pull-in and hold-in windings now oppose one another. This action of the windings, along with the help of the return spring, causes the starter drive assembly to disengage and the solenoid switch contacts to open simultaneously. As soon as the contacts open, the starter circuit is turned off.

## Circuit Description (Key Start)

When the ignition switch is placed in the Start position, a discrete signal is supplied to the body control module (BCM) notifying it that the ignition is in the Start position. The BCM then sends a message to the engine control module (ECM) notifying it that CRANK has been requested. The ECM verifies that the transmission is in Park or Neutral. If it is, the ECM then supplies 12 V to the control circuit of the crank relay. When this occurs, battery positive voltage is supplied through the switch side of the crank relay to the S terminal of the starter solenoid.

## Starting System Block Diagram



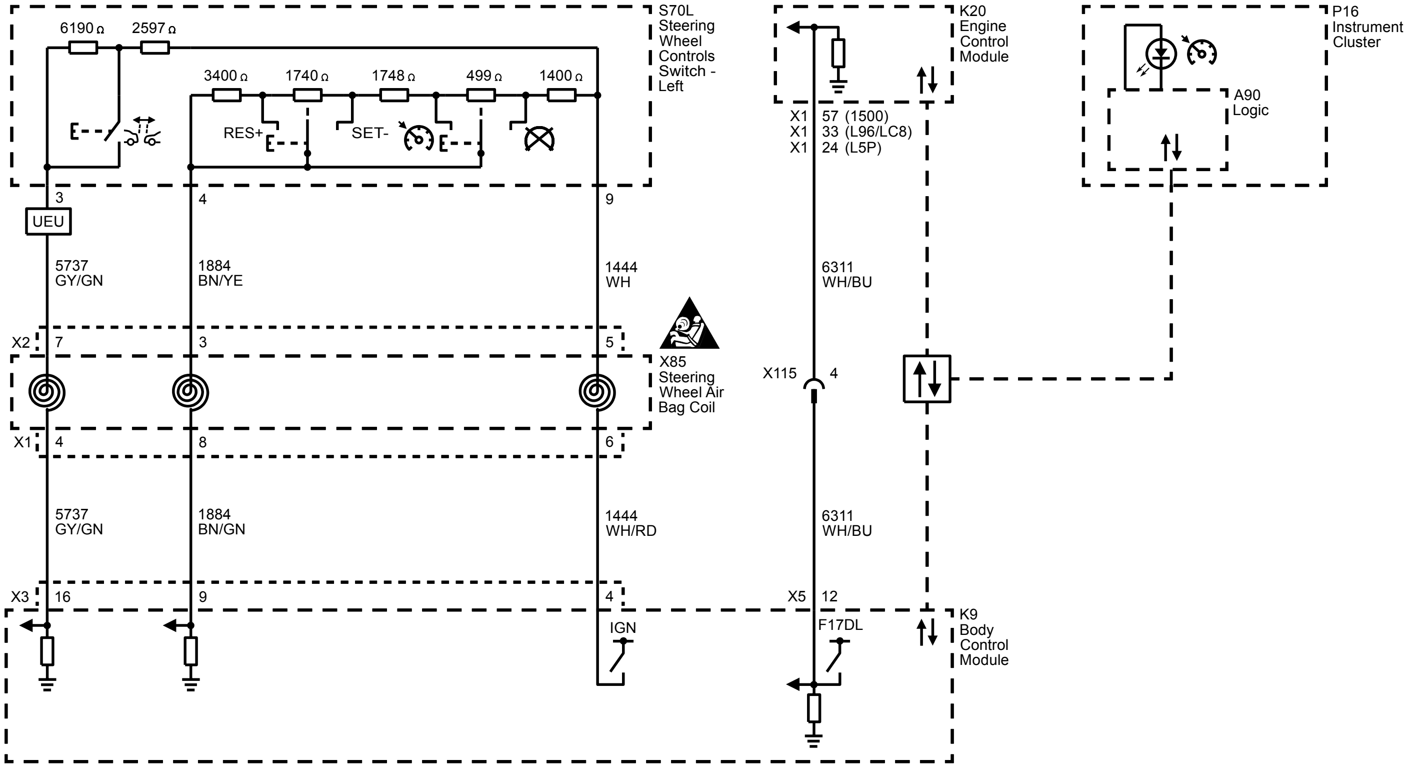
# Engine/Propulsion

## Cruise Control

### Schematic and Routing Diagrams

#### Cruise Control Schematics

**Cruise Control**

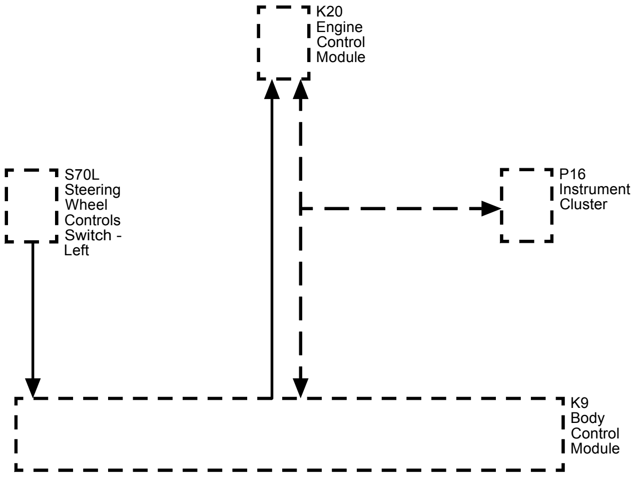


S70L Steering Wheel Controls Switch - Left
6190 Ω
2597 Ω
3400 Ω
1740 Ω
1748 Ω
499 Ω
1400 Ω
RES+
SET-
3
4
9
UEU
5737 GY/GN
1884 BN/YE
1444 WH
X2
7
3
5
X85 Steering Wheel Air Bag Coil
X1
4
8
6
5737 GY/GN
1884 BN/GN
1444 WH/RD
X3
16
9
4
IGN
K20 Engine Control Module
X1 57 (1500)
X1 33 (L96/LC8)
X1 24 (L5P)
6311 WH/BU
X115
4
6311 WH/BU
X5
12
F17DL
K9 Body Control Module
P16 Instrument Cluster
A90 Logic

# Description and Operation

## Cruise Control Description and Operation

### Cruise Control System Block Diagram



Cruise control is a speed control system that maintains a desired vehicle speed under normal driving conditions at speeds above 40 km/h (25 mph). Steep grades may cause variations in the selected vehicle speeds.

The following are the main components of the Cruise Control System:

- The accelerator pedal
- The brake pedal position (BPP) sensor
- The body control module (BCM)
- The cruise on/off switch
- The cruise control cancel switch
- The + RES switch (equivalent to resume/accelerate switch)
- The − SET switch (equivalent to set/coast switch)
- The engine control module (ECM)
- The throttle actuator control (TAC) motor (gasoline engines only)
- The vehicle speed sensor

The body control module (BCM) monitors the signal circuit of the cruise control switches, which are located on the steering wheel. The BCM relays the cruise control switch status to the engine control module (ECM) via the serial data circuit. The ECM uses the status of the cruise control switch to determine when to capture and maintain the vehicle speed. The ECM monitors the vehicle speed signal circuit in order to determine the desired vehicle speed.

Voltage is supplied to the cruise control switch via the steering wheel control switch reference voltage circuit supplied by the BCM. The cruise control function switches are arranged in a resistive ladder design, with each cruise control function switch having a different resistance value. The BCM detects a specific voltage value that is associated with the cruise control function switch being activated. The BCM sends a serial data message to the ECM indicating that the on/off switch is active. Similarly, when the normally open + RES switch or the normally open − SET switch are pressed, the switch closes and the BCM detects the predetermined voltage signal on the cruise control resume/accel and set/coast switch signal circuit. The BCM sends a serial data message to the ECM indicating that the + RES switch or the − SET switch is active.

### Cruise Control Engaged

The Cruise Control System will engage and adjust vehicle speeds, based on the activation of the following cruise control switches, which are located on the steering wheel:

- On/Off

- + RES
- − SET

To engage the Cruise Control System, ensure that the vehicle speed is above 40.2 km/h (25 mph), turn the cruise On/Off switch ON and momentarily press the − SET switch. The ECM will engage the Cruise Control System and record the vehicle speed. The ECM sends a serial data message to the instrument panel cluster (IPC) in order to illuminate the Cruise Engaged indicator in the IPC. Refer to the vehicle owner's manual for the location and operation of the cruise control On/Off indicators and driver information center (DIC) messages.

Pressing the accelerator pedal while the Cruise Control System is engaged, allows the driver to override the Cruise Control System in order to accelerate the vehicle beyond the current set vehicle speed. When the accelerator pedal is released, the vehicle will decelerate and resume the current set vehicle speed.

The driver can also override the current set vehicle speed via the − SET switch and the + RES switch. When the Cruise Control System is engaged, pressing and holding the − SET switch will allow the vehicle to decelerate from the current set vehicle speed without deactivating the Cruise Control System. When the − SET switch is released, the ECM will record the vehicle speed and maintain the vehicle speed as the new set vehicle speed. When the Cruise Control System is engaged, momentarily pressing the − SET switch will allow the vehicle to decelerate at a vehicle specific calibratable increment, commonly 1.6 km/h (1 mph), each time that the − SET is momentarily pressed, with a minimum vehicle speed of 38 km/h (24 mph). Refer to the vehicle Owner's Manual for more information.

Pressing and holding the + RES switch, when the Cruise Control System is engaged, will allow the vehicle to accelerate to a greater vehicle speed than the current set vehicle speed. When the + RES switch is released, the ECM will record the vehicle speed and maintain the vehicle speed as the new set vehicle speed. When the Cruise Control System is engaged, momentarily pressing the + RES switch will allow the vehicle to accelerate at a vehicle specific calibratable increment, commonly 1.6 km/h (1 mph), each time that the + RES switch is momentarily pressed. Momentarily activating the + RES switch will recall the previous vehicle speed, after the cruise control system has been disengaged by pressing the brake pedal, or CANCEL switch. Refer to the vehicle Owner's Manual for more information.

### Cruise Control Disengaged

The engine control module (ECM) disengages the cruise control operation based on the signals from the following switches:

- The brake pedal position (BPP) sensor
- The On/Off switch
- The cruise control cancel switch

The Cruise Control System will disengage when the brake pedal is applied. The body control module (BCM) monitors the BPP sensor via the BPP sensor signal circuit as the voltage signal increases while the pedal is further applied. The ECM monitors the BPP signal through a discrete input and a serial data message signal from the BCM indicating the brake status. When either signal indicates the brake pedal is applied, the ECM will disengage the cruise control system.

The Cruise Control System will also disengage when the cruise control on/off switch is switched OFF, or the cruise control cancel switch is activated. The body control module (BCM) determines when the cruise control cancel switch is activated. When the normally open cancel switch is closed, the BCM detects the predetermined voltage signal on the cruise control function switch circuit. The vehicle speed stored in the memory of the engine control module will be erased when the cruise control On/Off switch is turned OFF, or the ignition switch is turned OFF. The BCM sends a serial data message to the ECM in order to disengage the cruise control system. When the Cruise Control System has been disengaged, the ECM sends a serial message to the instrument panel cluster (IPC) in order to turn OFF the Cruise Engaged indicator.

Every time the Cruise Control System is disengaged, the ECM will keep track of the reason for system disengagement. The last 8 disengagement reasons will be recorded within the ECM memory. The scan tool will display the last 8 Cruise Disengage History parameters, in which one out of approximately 50 possible reasons will be displayed in each of these 8 parameters. For the disengagement reason to be displayed within the scan tool parameter the Cruise Control System is active and disengagement is requested.

When engagement of the system is requested but an engagement inhibit is present, the most recent inhibit reason is recorded in the ECM history. The scan tool will display the most recent inhibit reason, in which one out of approximately 50 possible reasons will be displayed.

### Cruise Control Inhibited

The engine control module (ECM) inhibits the cruise control operation when any of the following conditions exist:

- The ECM has not detected a brake pedal activation from the body control module (BCM) this ignition cycle.
- A Cruise Control System DTC has been set.
- The vehicle speed is less than 38.6 km/h (24 mph).
- The vehicle speed is too high.
- The vehicle is in PARK, REVERSE, NEUTRAL, or 1st gear.
- The engine RPM is low.
- The engine RPM is high.
- The system voltage is not between 9 volts and 16 volts.
- The Antilock Brake System (ABS)/Traction Control System (TCS) is active for more than a calibratable time (typically 0.3 to 0.7 seconds).

### Cruise Control Inhibit Reasons

This is a general list of inhibit reasons. Not every inhibit reason is applicable to all vehicles. Refer to the scan tool inhibit reason list for the last 8 reasons that have been recorded during the current ignition cycle.

| Scan Tool Name | Description | Long Description |
|---|---|---|
| ACC BRAKE INOP | Adaptive Cruise Control Automatic Braking Failed | Adaptive Cruise Control Automatic Braking Inoperative |

| | | |
|---|---|---|
| ACC DATA | Serial data fault for Adaptive Cruise Control Throttle Control and Brake Control signals sent by Adaptive Cruise Control module | Adaptive Cruise Control Module serial data fault is active or communication has been lost between ACC module and ECM. |
| ACC INHIBIT | Adaptive Cruise Control Inhibited | Adaptive Cruise Control Inhibited |
| ACC OPTION | Adaptive Cruise Control option mismatch | Cruise control type (adaptive cruise or conventional cruise) mismatched between ECM and BCM. |
| ACCEL RATE | High acceleration | Vehicle acceleration rate is too high. |
| ACCEL Time | Rate Limiting Fault | Cruise torque request rate limiting active too long |
| APP OVERRIDE | Pedal greater than cruise (override) | Driver has overridden cruise control set speed with accelerator pedal for greater than an allowable time. |
| Auto Brk Data | Automatic Braking Engine Torque Request Signal Communication Malfunction | ECM to EBCM serial data fault is active or communication has been lost between ECM and EBCM. |
| AXLE RANGE | Rear Axle Low | Rear axle in low range |
| BPP DATA | DTC P0703 active or maximum time elapsed without receiving valid Brake Pedal Position signal. | Serial data fault is active or communication has been lost with module sending brake pedal apply state |
| BPP DTC | Brake Pedal Position signal invalid | Brake Pedal Apply Circuit fault has been detected. |
| BPP Not Learned | Brake Apply Sensor Home Position Not Learned | Brake Pedal Position Sensor Released Position Not Learned. |
| BRAKE | Brake pedal apply | Brake Pedal was applied. |
| Brk Ped Press | Brake Pedal Driver Applied Pressure Detected | A Brake Pedal Apply has been detected based on brake pedal pressure as measured by the EBCM. |
| Calc Eng Torque | Calculated Torque | Engine torque calculation is incorrect. |
| CANCEL | Cancel switch active | Cancel Switch was depressed. |
| CLUTCH | Clutch switch active | Clutch Pedal was applied. |
| COAST DISENGAGE | Coast disengage | Cruise control is in coast mode with the Set/Coast switch depressed and is requesting no throttle |
| COAST SPEED LOW | Coast below low speed inhibit | Set / Coast switch was depressed. Vehicle slowed below minimum cruise operating speed. |
| Cruise Brk Inop | Brake System Malfunction | EBCM has detected a failure that does not allow automatic braking to be performed. |
| CRUISE S/W | Sequence of completion checks | Cruise control software execution error has occurred. |
| CRUISE SW DATA | Serial data fault (Cruise switch serial communication fault) | Cruise switch serial data fault is active or communication has been lost with module sending cruise switch states |
| CRUISE SW. OFF | On/Off switch in Off state | Cruise On/Off switch turned Off |
| DECEL RATE | High deceleration | Vehicle deceleration rate is too high. |
| DLC OVERRIDE | ALDL | Scan Tool plugged into ALDL connector |

| | | |
|---|---|---|
| DTC SET | Malfunction in PCM/ECM (DTC active) | DTC is active or in history that inhibits cruise control operation. |
| D WHL SPD HI | Driven Whl Spd Greater (wheel slip detection) | Driven wheel speed greater than Non Driven wheel speed (slip detection) |
| D WHL SPD LOW | Un-driven Whl speed Greater | Non Driven wheel speed greater than driven wheel speed |
| ECM INHIBIT | PCM/ECM inhibit (RAM corruption) | ECM internal communication error |
| ECM RESET | ECM Running Reset | ECM Running Reset occurred |
| ECT OVERTEMP | Engine metal overtemp active | Engine over temperature. Overheated. |
| ENG RUN TIME | Engine run time not elapsed | Engine has not been running long enough, typically five seconds. |
| ENGINE SPEED | Engine speed too low or too high | Engine RPM too low (near stall) or too high (near engine RPM fuel shutoff). |
| FIRST GEAR | 1st Gear | Transmission is engaged in 1st gear |
| HIGH SPEED | Vehicle speed exceeds high speed threshold | Vehicle speed has exceeded maximum cruise operating speed |
| HIGH VOLTAGE | Voltage above high voltage threshold | Ignition Voltage High at ECM (typically 18 volts) |
| ILLEGAL MODE | Illegal cruise mode | Cruise control mode is incorrect based on switch states. |
| LOST FWD GEAR | Transmission in neutral. Reverse or park | Gear selector not in forward gear |
| LOW SPEED | Vehicle speed drops below low speed threshold | Vehicle speed dropped below the cruise control minimum operating speed. May be due to hilly terrain and low vehicle speed. Manual transmission gear selection and engine torque may contribute to this disengagement reason. |
| LOW VOLTAGE | Voltage below low voltage threshold | Ignition Voltage Low at ECM (typically 9 volts) |
| MEMORY DTC | Memory Failure | Control module memory failure detected. |
| MPH LIMIT | MPH Limited Fuel (Vehicle overspeed fuel cut-off active) | Vehicle overspeed protection active with fuel cut off active |
| M/T Gear Changed | Manual transmission out of gear with no clutch pedal apply | Manual transmission shifted to Neutral without clutch pedal being applied. |
| NONE | None | This disengagement reason may be displayed after a dead battery repair or module replacement. |
| OVER SET SPEED | Over schedule | Vehicle speed has exceeded driver selected set speed by more than an allowable amount. This may occur while driving down a significant grade or driver overriding cruise while performing a passing maneuver. |
| PARK BRAKE | Park Brake Switch signal Active | Parking Brake Applied |

| | | |
|---|---|---|
| PEDAL INITIALIZE | Brake before cruise | The brake pedal has not been seen as applied prior to driver request to engage cruise with set switch. A brake pedal apply must be seen before allowing cruise engagement during each key cycle. On a vehicle equipped with a manual transmission, a clutch pedal apply may satisfy the brake pedal apply criteria. |
| PTO ACTIVE | Power Take Off Active | Power Take Off is active. |
| Ram DTC | Processor Integrity Fault (Ram corruption) | ECM software error has occurred |
| RPM LIMIT | Injectors Disabled (Engine overspeed fuel cut-off active) | Engine RPM limiter active with fuel cut off active. |
| S/C ON SPEED HI | Over schedule tap-down | Set/Coast switch selected, vehicle speed is above set speed and does not decrease. May be due to traveling down hill |
| SIMUL S/C-R/A | SET and RESUME switches simultaneously active | Set/Coast and Resume Accelerate switches pressed simultaneously |
| SL/W Sys On | Speed Limiter / Warning On/Off switch turned on | Driver has turned on the Speed Limiter/Warning on/off switch. Cruise is disabled / inhibited and cruise on/off switch will be set to OFF. |
| SW. INVALID | Analog cruise switch input out of range | Cruise switch voltage signal in invalid range |
| TAC INHIBIT | ETC prevents cruise operation | Electronic Throttle Control has detected a failure in the throttle control hardware |
| TCS | Traction control active | Traction Control was Active |
| TRANS DTC | Trans Gear Fault | Transmission DTC is active or in history that inhibits cruise control operation |
| UNDER SET SPEED | Under schedule | Vehicle speed is below cruise control set speed by more than an allowable amount |
| VSES | Vehicle stability active | Vehicle Stability Control was active |
| 4WD Low | 4WD Low | Transfer case in low range |

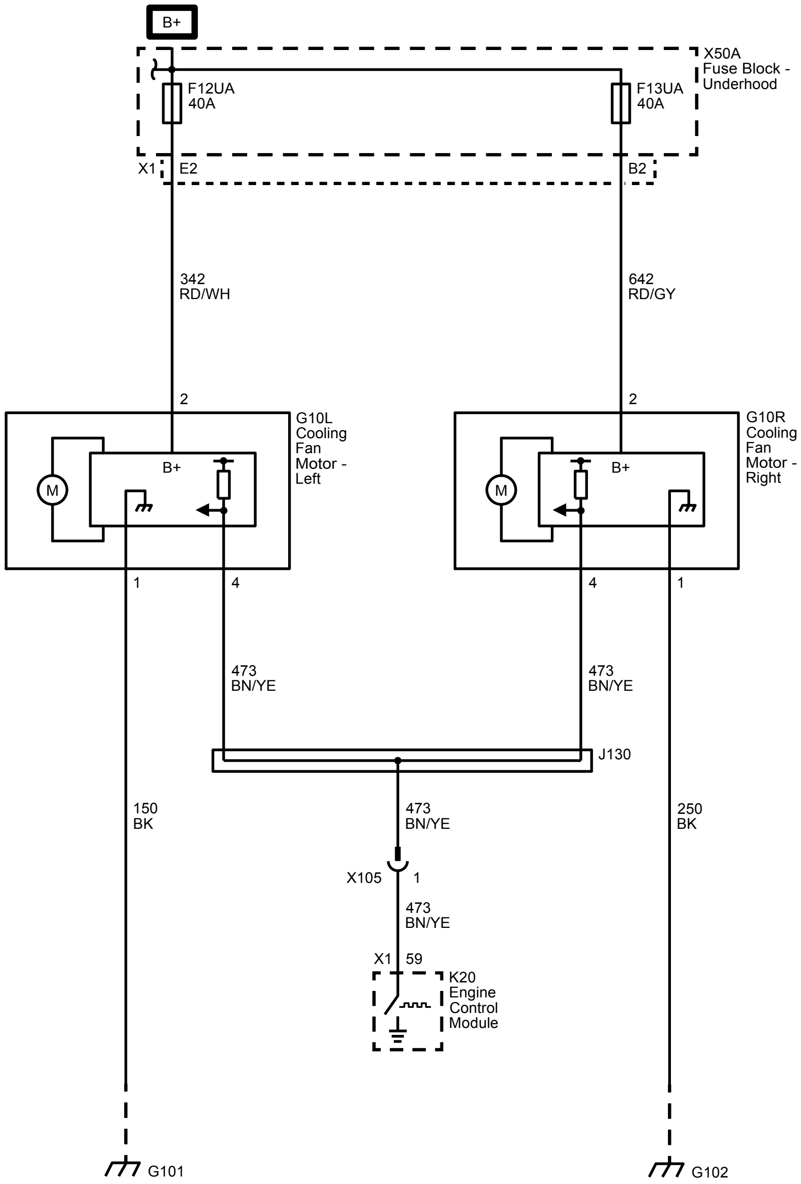
# Engine/Propulsion

## Engine Heating and Cooling

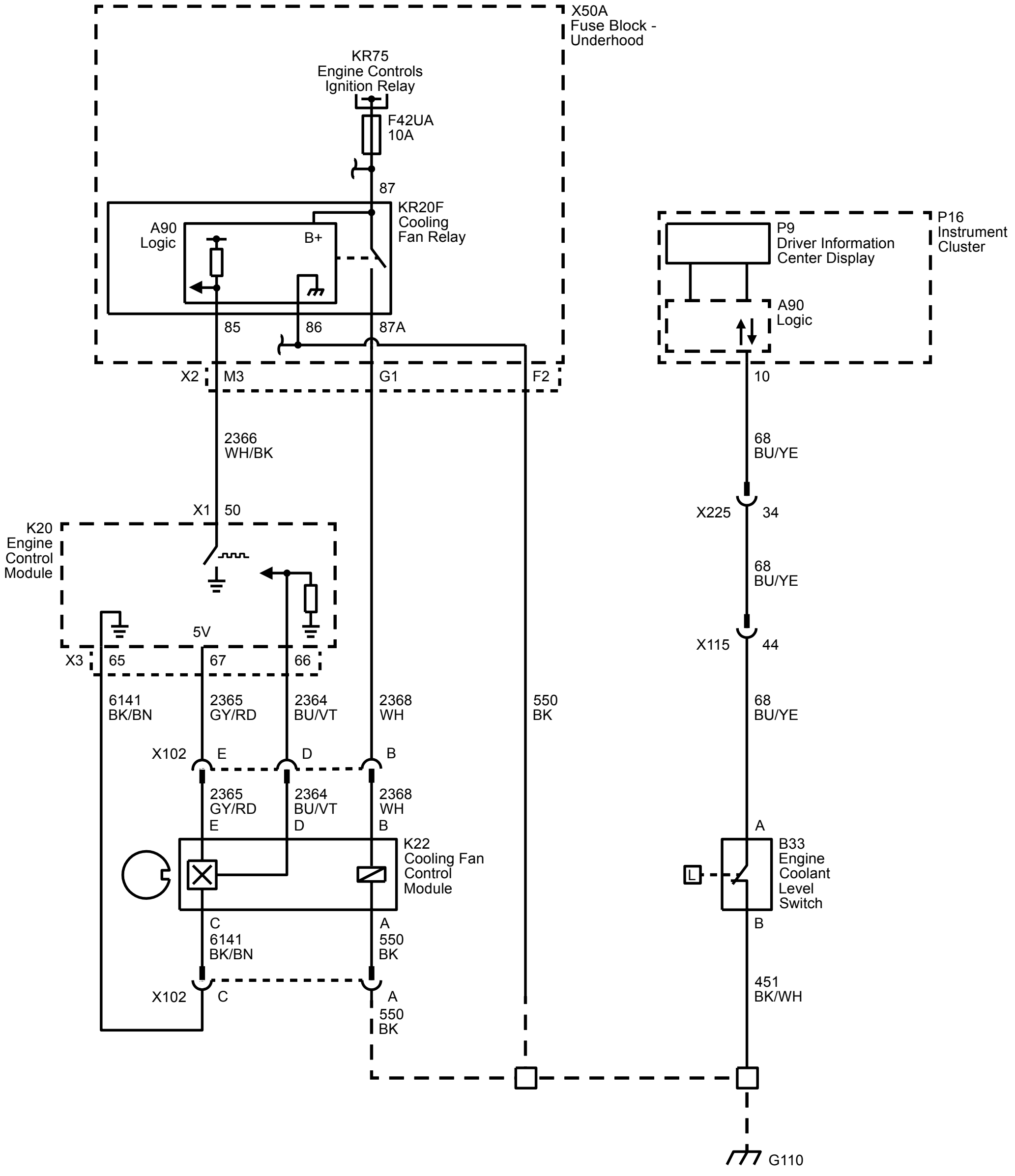
### Schematic and Routing Diagrams

#### Engine Heating/Cooling Schematics

**Dual Fan (1500)**


B+
X50A
Fuse Block -
Underhood
F12UA
40A
F13UA
40A
X1
E2
B2
342
RD/WH
642
RD/GY
2
2
G10L
Cooling
Fan
Motor -
Left
G10R
Cooling
Fan
Motor -
Right
M
B+
M
B+
1
4
4
1
473
BN/YE
473
BN/YE
J130
150
BK
473
BN/YE
250
BK
X105
1
473
BN/YE
X1
59
K20
Engine
Control
Module
G101
G102

## Single Clutch (L5P)


X50A
Fuse Block - Underhood
KR75
Engine Controls Ignition Relay
F42UA
10A
87
KR20F
Cooling Fan Relay
A90
Logic
B+
85
86
87A
X2
M3
G1
F2
P16
Instrument Cluster
P9
Driver Information Center Display
A90
Logic
10
2366
WH/BK
68
BU/YE
X225
34
68
BU/YE
X115
44
X1
50
K20
Engine Control Module
5V
X3
65
67
66
6141
BK/BN
2365
GY/RD
2364
BU/VT
2368
WH
550
BK
68
BU/YE
X102
E
D
B
2365
GY/RD
E
2364
BU/VT
D
2368
WH
B
K22
Cooling Fan Control Module
A
B33
Engine Coolant Level Switch
L
B
C
6141
BK/BN
A
550
BK
451
BK/WH
X102
C
A
550
BK
G110

# Description and Operation

## Cooling Fan Description and Operation (L5P)

### Cooling Fan Control

The purpose of the electro-viscous (EV) fan clutch is to maintain powertrain cooling requirements. The engine control module (ECM) monitors the following sensors to regulate the fan speed:

- Engine coolant temperature sensor
- A/C refrigerant pressure sensor
- Vehicle speed sensor
- Intake air temperature sensor
- Transmission fluid temperature sensor
- Ambient air temperature sensor
- Cooling fan speed sensor

The ECM controls the EV fan clutch operation. The ECM regulates a 12-volt pulse width modulated signal (PWM) to the cooling fan relay. The PWM signal determines the ON time of the relay. As the ECM command increases, so does the ON time of the relay. The relay ON time directly controls the amount of time the solenoid, which is internal to the fan clutch, is energized. When the solenoid in the fan clutch is energized, it opens the spring loaded valve and allows fluid to flow from the storage chamber to the fluid coupling of the cooling fan clutch, which increases the fan speed. When the solenoid is de-energized, the spring loaded valve closes, and allows the fluid in the coupling of the fan clutch to drain back to the storage chamber, which reduces fan speed. The rapid modulation of the fan clutch solenoid valve gives the ECM the ability to precisely control the amount of fluid that remains in the fluid coupler, allowing more effective regulation of the fan speed and powertrain cooling requirements.

The fan clutch supplies a feedback signal to the ECM, as an actual fan speed input. The fan speed sensor is a hall effect sensor which is internal to the fan clutch. The ECM supplies a 5-volt reference and a low reference to the hall effect sensor. The hall effect sensor returns a signal pulse through the cooling fan speed signal circuit in response to the reluctor track passing by the magnetic field of the hall effect sensor.

The scan tool can operate the cooling fan clutch. This is done through the controls function menu screen. Cooling fan clutch engagement can take up to 2 minutes with a 100 percent command and the engine speed at 2,000 RPM. The lower the engine speed, the longer it will take for the fan to engage. Cooling fan disengagement can take up to 2 minutes with the engine speed at 2,000 RPM. The lower the engine speed, the longer it will take to disengage. In lower ambient air temperatures the cooling fan will engage in less time, however, it will take longer to disengage due to the properties of the fluid vs. temperature.

Under certain conditions the cooling fan may be engaged at engine start. The cooling may have been engaged at the time the engine was turned off. Or, fluid may bleed from the storage chamber into the fluid coupling of the cooling fan clutch while the engine is off. Although the fan clutch is commanded off during a cold start, this is the most likely time a vehicle driver will notice that the fan noise is excessive in comparison to engine starts when the fan clutch is disengaged.

## Cooling Fan Description and Operation (L83, L86, LV1, LV3, or L8B)

### Cooling Fan Control

The engine cooling fan system is composed of 2 electric cooling fans, fan motors, and 2 control modules. The engine control module (ECM) controls the fan speed by sending a pulse width modulated (PWM) signal to the cooling fan control modules. The cooling fan control module varies the voltage drop across the cooling fan motors in relation to the pulse width modulated signal, which allows the cooling fans to operate at variable speeds.

The cooling fan speed is effected by many different conditions and the ECM will adjust the duty cycle from 0–100 percent based on cooling system requirements. The scan tool output control is only capable of operating the cooling fan increments, between 10–90 percent. 90 percent is considered high speed fan. When multiple cooling fan speed requests are received, the ECM operates the fan at the highest of speed requests. The ECM commands the fans ON under the following conditions:

- The engine coolant temperature is warmer than a predetermined temperature.
- The engine oil temperature is warmer than a predetermined temperature.
- The A/C pressure reaches a predetermined pressure.
- If the engine coolant temperature at key-off is warmer than a predetermined value, or the A/C pressure is greater than a predetermined value, the cooling fan will operate at a low speed. The fan will shut OFF if the temperature or pressure drops below the predetermined value, but will only operate for 2 minutes, regardless of the coolant temperature or A/C pressure.

### Cooling System Electronic Component Description and Operation

#### Coolant Heater

The coolant heater operates using 110 V AC external power and is designed to warm the coolant in the engine block area for improved starting in very cold weather. The coolant heater also helps reduce fuel consumption when a cold engine is warming up. The unit is equipped with a detachable AC power cord. A weather shield on the cord is provided to protect the plug when not in use.

#### Engine or Radiator Coolant Temperature Sensor

The engine coolant temperature (ECT) sensor or radiator coolant temperature (RCT) sensor is a variable resistor that measures the temperature of the engine or radiator coolant. The ECM supplies 5 V to the sensor signal circuit and a ground for the low reference circuit.

#### Engine Coolant Thermostat Heater

The ECM controls the pulse width modulated (PWM) thermostat heater circuit. The engine coolant thermostat heater helps control coolant flow and regulates the engine operating temperature. The ignition relay supplies 12 V to the thermostat through a fuse. The ECM controls the engine coolant thermostat heater by grounding the control circuit with a solid state device called a driver. The driver is equipped with a feedback circuit that is pulled-up to a voltage. The ECM can determine if the control circuit is open, shorted to ground, or shorted to a voltage by monitoring the feedback voltage.

#### Electronic Coolant Pump

The switchable water pump is always ON in the default position. When commanded, an actuator disengages a clutch that decouples the pump from the engine. An Engine Material Sensor has been introduced on the engine head for the switchable water pump control and engine protection purposes. The engine metal temperature (EMT) sensor is present only if the switchable water pump is present in the specific application.

#### Engine Metal Temperature Sensor/Cylinder Head Temperature Sensor

The cylinder head temperature sensor is a variable resistor that measures the temperature of the cylinder head. The engine control module (ECM) supplies 5 V to the cylinder head temperature sensor signal circuit and a ground for the low reference circuit.

#### Electro-Viscous (EV) Fan Clutch

The ECM controls the EV fan clutch operation. The ECM regulates a 12-volt pulse width modulated signal (PWM) to the cooling fan relay. The PWM signal determines the ON time of the relay. As the ECM command increases, so does the ON time of the relay. The relay ON time directly controls the amount of time the solenoid, which is internal to the fan clutch, is energized. When the solenoid in the fan clutch is energized, it opens the spring loaded valve and allows fluid to flow from the storage chamber to the fluid coupling of the cooling fan clutch, which increases the fan speed. When the solenoid is de-energized, the spring loaded valve closes, and allows the fluid in the coupling of the fan clutch to drain back to the storage chamber, which reduces fan speed. The rapid modulation of the fan clutch solenoid valve gives the ECM the ability to precisely control the amount of fluid that remains in the fluid coupler, allowing more effective regulation of the fan speed and powertrain cooling requirements.

# Cooling System Description and Operation

## Engine Coolant Indicators

### ENGINE COOLANT HOT

The instrument panel cluster (IPC) displays ENGINE COOLANT HOT message when the IPC receives a message from the powertrain control module (PCM) requesting illumination of this driver warning.

### ENGINE OVERHEATED

The IPC displays ENGINE OVERHEATED message when the IPC receives a message from the PCM requesting illumination of this driver warning.

### REDUCED ENGINE POWER

The IPC displays REDUCED ENGINE POWER message when the IPC detects a reduced engine power condition from the PCM. The IPC receives a message from the PCM requesting illumination when the engine temperature exceeds a calibrated value.

## Coolant Heater (If Equipped)

The optional engine coolant heater (RPO K05) operates using 110-volt AC external power and is designed to warm the coolant in the engine block area for improved starting in very cold weather −18°C (0°F). The coolant heater helps reduce fuel consumption when a cold engine is warming up. The unit is equipped with a detachable AC power cord. A weather shield on the cord is provided to protect the plug when not in use.

## Cooling System

The cooling system's function is to maintain an efficient engine operating temperature during all engine speeds and operating conditions. The cooling system is designed to remove approximately one-third of the heat produced by the burning of the air-fuel mixture. When the engine is cold, the coolant does not flow to the radiator until the thermostat opens. This allows the engine to warm quickly.

### Cooling Cycle

Coolant is drawn from the radiator outlet and into the water pump inlet by the water pump. Coolant will then be pumped through the water pump outlet and into the engine block. In the engine block, the coolant circulates through the water jackets surrounding the cylinders, where it absorbs heat.

Some coolant is also pumped from the water pump to the heater core, then back to the water pump. This provides the passenger compartment with heat and defrost.

The coolant is then forced through the cylinder head gasket openings and into the cylinder heads. In the cylinder heads, the coolant flows through the water jackets surrounding the combustion chambers and valve seats, where it absorbs additional heat.

### Coolant

The engine coolant is a solution made up of a 50-50 mixture of DEX-COOL and suitable drinking water. The coolant solution carries excess heat away from the engine to the radiator, where the heat is dissipated to the atmosphere.

### Radiator

The radiator is a heat exchanger. It consists of a core and two tanks. The aluminum core is a tube and fin crossflow design that extends from the inlet tank to the outlet tank. Fins are placed around the outside of the tubes to improve heat transfer to the atmosphere.

The inlet and outlet tanks are a molded, high temperature, nylon reinforced plastic material. A high temperature rubber gasket seals the tank flange edge to the aluminum core. The tanks are clamped to the core with clinch tabs. The tabs are part of the aluminum header at each end of the core.

The radiator also has a drain cock (except HD), located in the bottom of the right hand tank. The drain cock unit includes the drain cock and drain cock seal.

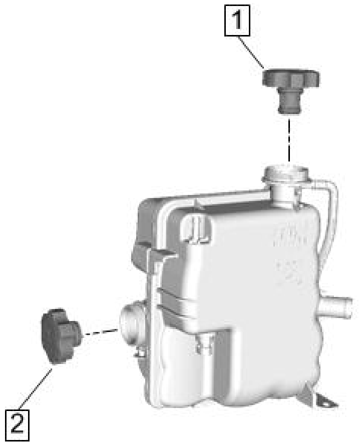
The radiator removes heat from the coolant passing through it. The fins on the core transfer heat from the coolant passing through the tubes. As air passes between the fins, it absorbs heat and cools the coolant.

### Surge Tank

The surge tank is a plastic tank with a threaded pressure cap. The tank is mounted at a point higher than all other coolant passages. The surge tank provides an air space in the cooling system that allows the coolant to expand and contract. The surge tank provides a coolant fill point and a central air bleed location.

During vehicle use, the coolant heats and expands. Increased coolant volume flows into the surge tank. The increased coolant volume can in some conditions push past the pressure cap and through a channel into the overflow bottle. As the coolant circulates, the air is allowed to bubble out. This air is then transferred to the overflow bottle, through the surge tank cap, where it returns to the atmosphere. Coolant without air bubbles absorbs heat much better than coolant with bubbles. When the engine cools, the coolant, without air bubbles, contracts back into the surge tank from the bottom of the overflow bottle.

### Radiator Surge Tank (L5P)



The L5P radiator surge tank comes with 2 different radiator surge tank caps. The top radiator surge tank cap (1) used to fill the system, is a non-pressurized radiator surge tank cap with left hand threads. The side radiator surge tank cap (2), is a pressurized radiator surge tank cap.

This radiator surge tank has the liquid volume at the top and the air portion at the bottom of the tank. The purpose of this design is to ensure that the liquid volume will be at the highest level in the cooling system. When thermal expansion occurs (due increase in the system temperature and pressure), the liquid raises to the top of the radiator surge tank and then goes to the air portion through the left side channel. When the liquid reaches the bottom and starts to fill the lower portion, the intention is that all liquid will be contained in the lower portion.

**Note:** The assumption is that there will be approximately 6% expansion, but the system can contain 8% to 9%.

When the system starts to cool (lose heat), the coolant contracts, and this causes a vacuum effect resulting in the upper portion exerting a suction on the liquid that is in the lower portion. This suction continues until the system cools completely.

The air contained in the lower portion exerts a pressure on the bottle walls, and when this pressure reaches the value of 20 PSI (140 KPa) the check valve in the pressurized radiator surge tank cap opens and allows excess pressure to escape, flowing through the lower overflow port.

The top radiator surge tank cap has 3 seals (instead of the 2 seals used in the side radiator surge tank cap) to protect the customer and/or service personnel from hot fluid exiting through the top portion of the neck itself, during hot engine conditions, and redirects the fluid to the lower part of the radiator surge tank.

The channel at the left of the radiator surge tank has the function of protecting the customer and/or service personnel if the fill radiator surge tank cap is accidentally opened during a hot condition. If the radiator surge tank cap is opened when the fluid is hot, the hot fluid will flow through the fill neck using an internal channel. This channel will not allow fluid passage, under pressure and/or hot conditions, and hence, there is no requirement for a pressurized radiator surge tank cap.

### Radiator Surge Tank Cap

The pressure radiator surge tank cap seals the cooling system. It contains a blow off or pressure relief valve and a vacuum or atmospheric valve. The pressure valve is held against its seat by a spring, which protects the radiator from excessive cooling system pressure. The vacuum valve is held against its seat by a spring, which permits opening of the valve to relieve vacuum created in the cooling system as it cools off. The vacuum, if not relieved, might cause the radiator and/or coolant hoses to collapse.

The pressure radiator surge tank cap allows cooling system pressure to build up as the temperature increases. As the pressure builds, the boiling point of the coolant increases. Engine coolant can be safely run at a temperature much higher than the boiling point of the coolant at atmospheric pressure. The hotter the coolant is, the faster the heat transfers from the radiator to the cooler, passing air.

The pressure in the cooling system can get too high. When the cooling system pressure exceeds the rating of the pressure radiator surge tank cap, it raises the pressure valve, venting the excess pressure.

As the engine cools down, the temperature of the coolant drops and a vacuum is created in the cooling system. This vacuum causes the vacuum valve to open, allowing outside air into the radiator surge tank. This equalizes the pressure in the cooling system with atmospheric pressure, preventing the radiator and coolant hoses from collapsing.

### Air Baffles and Seals

The cooling system uses deflectors, air baffles and air seals to increase cooling system capability. Deflectors are installed under the vehicle to redirect airflow beneath the vehicle and through the radiator to increase engine cooling. Air baffles are also used to direct airflow through the radiator and increase cooling capability. Air seals prevent air from bypassing the radiator and A/C condenser, and prevent recirculation of hot air for better hot weather cooling and A/C condenser performance.

### Transmission Oil Cooler

The transmission oil cooler is a heat exchanger. It is located inside the right side (V6) or left side (V8), end tank of the radiator. The transmission fluid temperature is regulated by the temperature of the engine coolant that surrounds the oil cooler as the transmission fluid passes through the cooler.

The transmission oil pump, pumps the fluid through the transmission oil cooler feed line to the oil cooler. The fluid then flows through the cooler while the engine coolant absorbs heat from the fluid. The fluid is then pumped through the transmission oil cooler return line, to the transmission.

### Engine Oil Cooler (If Equipped)

The engine oil cooler is a heat exchanger located inside the left side end tank of the radiator. The engine oil temperature is controlled by the temperature of the engine coolant that surrounds the oil cooler in the radiator.

The engine oil pump, pumps the oil through the engine oil cooler line to the oil cooler. The oil then flows through the cooler where the engine coolant absorbs heat from the oil. The oil is then pumped through the oil cooler return line, to the engine block system.

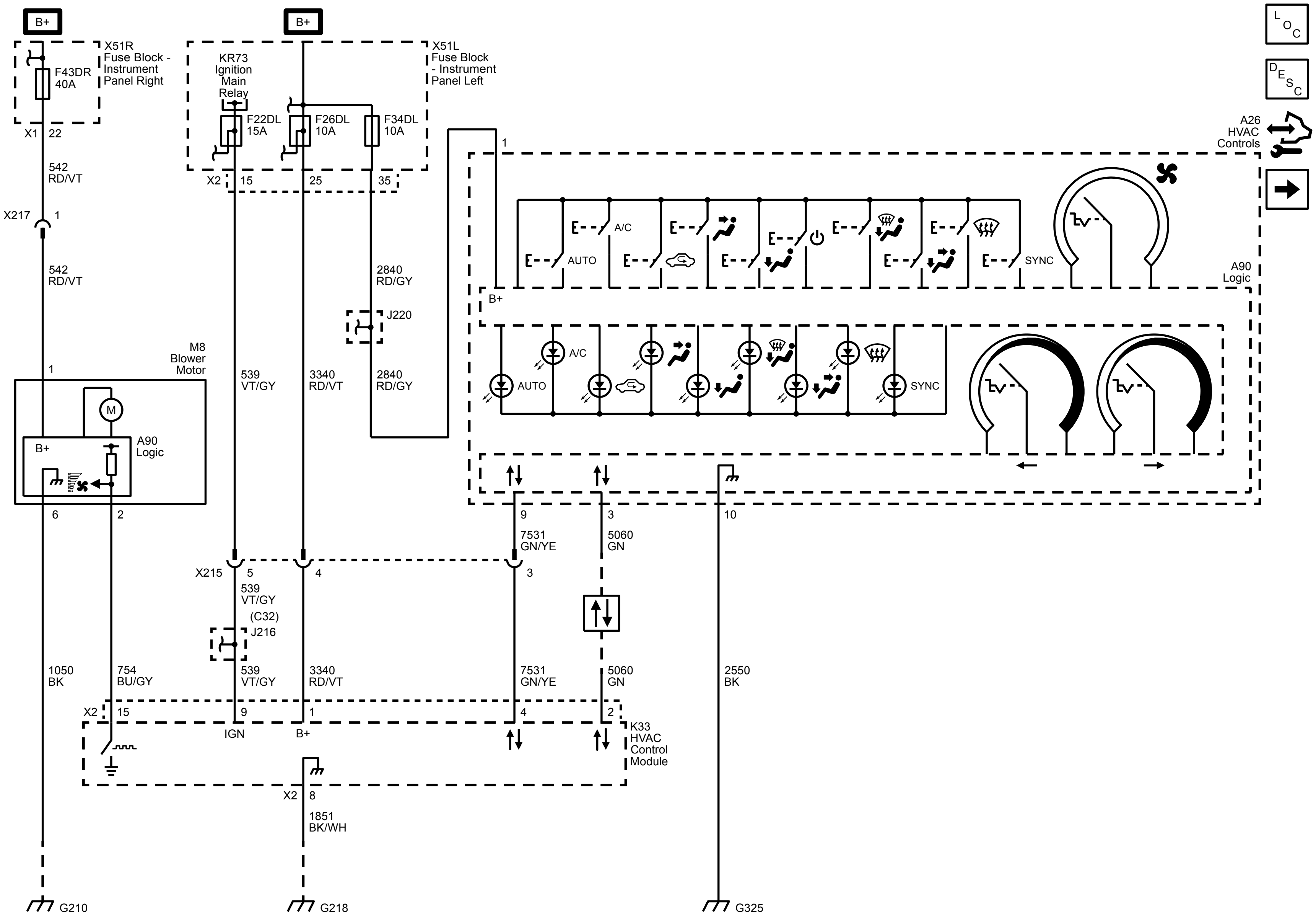
# HVAC

## HVAC - Automatic

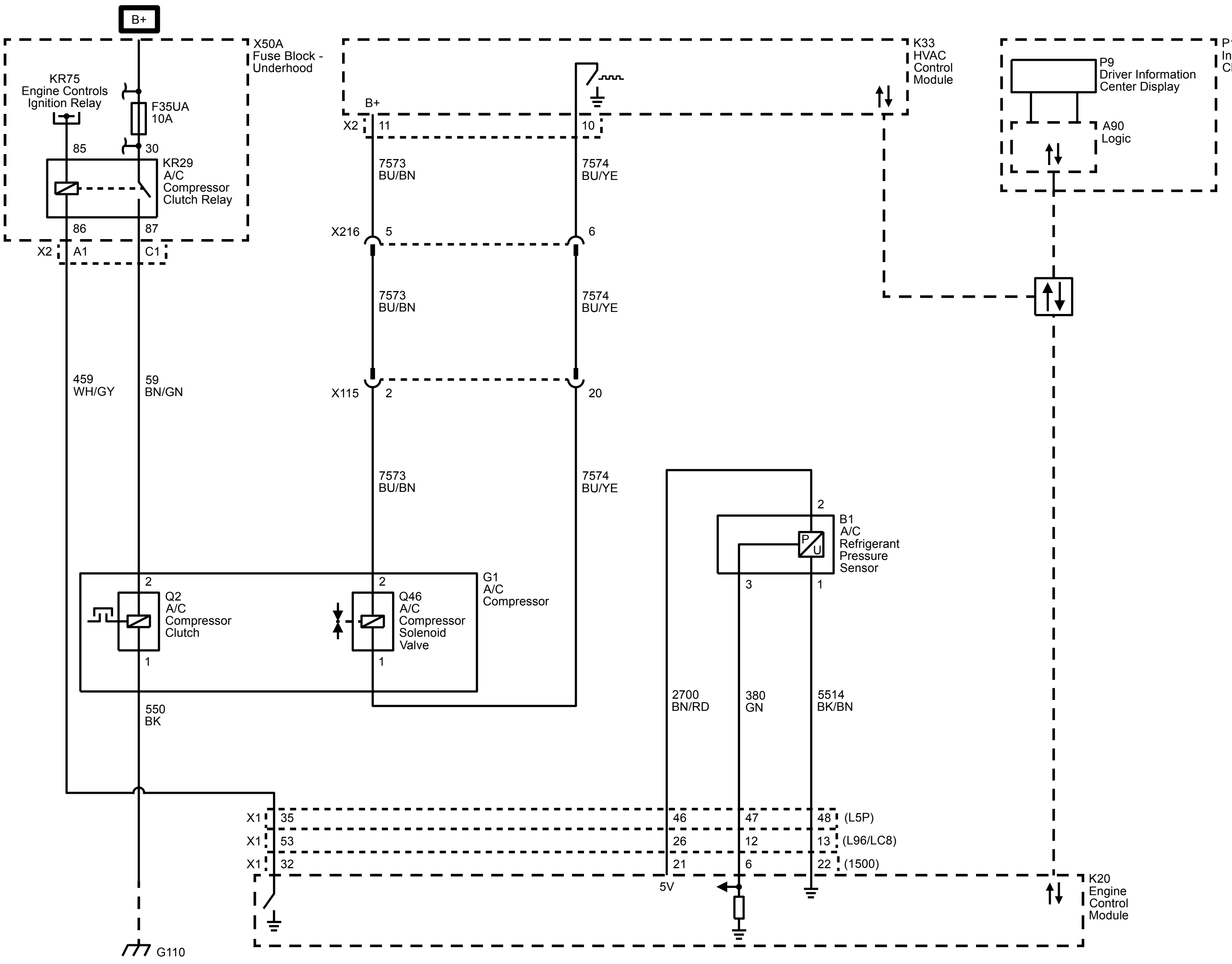
### Schematic and Routing Diagrams

### HVAC Schematics

### Power, Ground, Serial Data and Controls

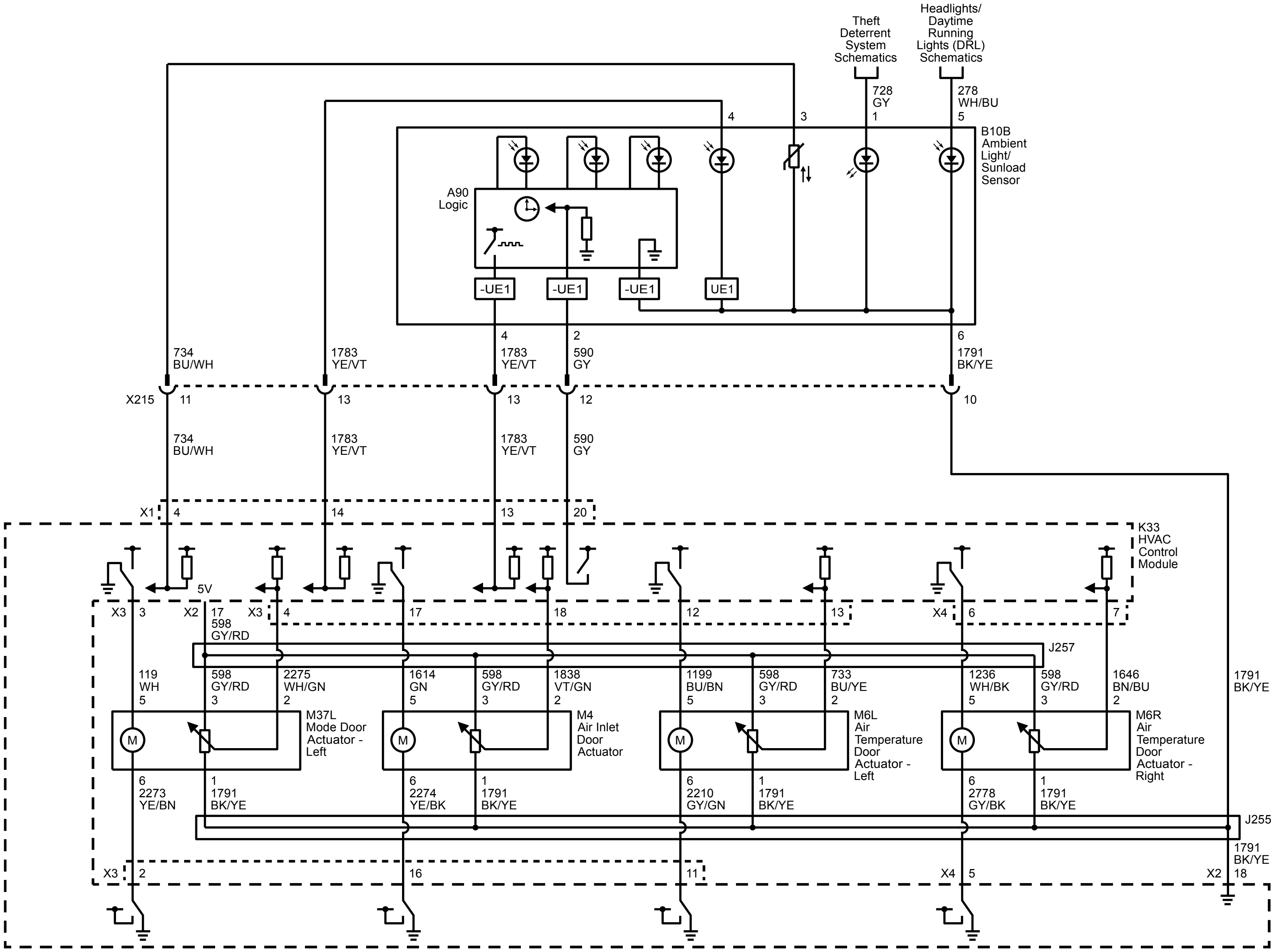

B+
X51R
Fuse Block - Instrument Panel Right
F43DR 40A
X1 22
542 RD/VT
X217 1
542 RD/VT
M8 Blower Motor
1
M
B+
A90 Logic
6
2
1050 BK
754 BU/GY
B+
X51L Fuse Block - Instrument Panel Left
KR73 Ignition Main Relay
F22DL 15A
F26DL 10A
F34DL 10A
X2 15
25
35
2840 RD/GY
J220
539 VT/GY
3340 RD/VT
2840 RD/GY
X215 5
4
3
539 VT/GY
(C32)
J216
539 VT/GY
3340 RD/VT
X2 15
9
1
IGN
B+
X2 8
1851 BK/WH
G210
G218
A26 HVAC Controls
1
A/C
AUTO
SYNC
A90 Logic
B+
A/C
AUTO
SYNC
9
3
10
7531 GN/YE
5060 GN
7531 GN/YE
5060 GN
4
2
K33 HVAC Control Module
2550 BK
G325
LOC
DESC

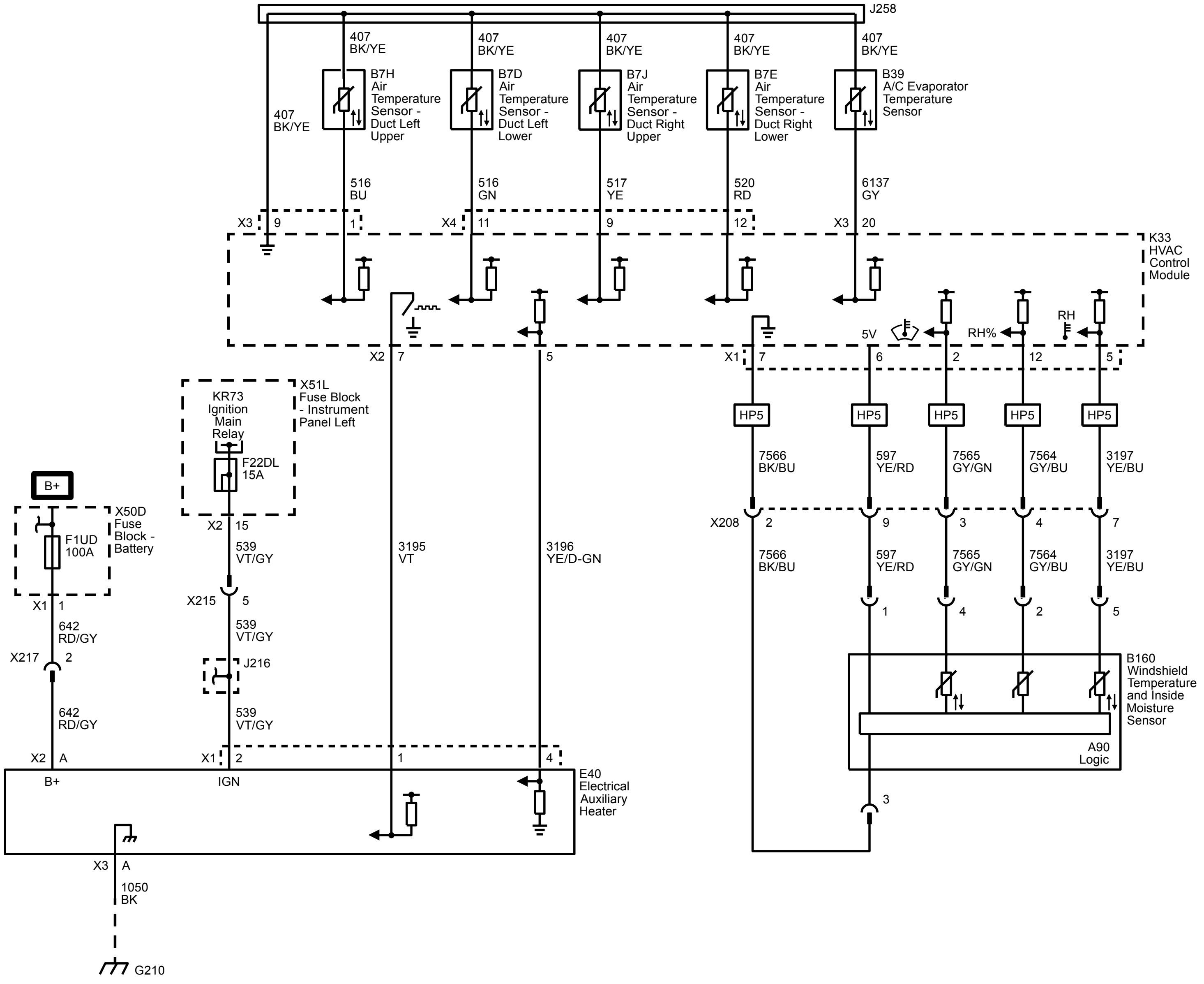
## A/C Compressor Controls


B+
X50A
Fuse Block - Underhood
KR75
Engine Controls Ignition Relay
F35UA
10A
85
30
KR29
A/C Compressor Clutch Relay
86
87
X2
A1
C1
459
WH/GY
59
BN/GN
K33
HVAC Control Module
B+
X2
11
10
7573
BU/BN
7574
BU/YE
X216
5
6
7573
BU/BN
7574
BU/YE
X115
2
20
7573
BU/BN
7574
BU/YE
P16
Instrument Cluster
P9
Driver Information Center Display
A90
Logic
2
B1
A/C Refrigerant Pressure Sensor
P
U
3
1
G1
A/C Compressor
2
Q2
A/C Compressor Clutch
1
2
Q46
A/C Compressor Solenoid Valve
1
550
BK
2700
BN/RD
380
GN
5514
BK/BN
X1
35
46
47
48
(L5P)
X1
53
26
12
13
(L96/LC8)
X1
32
21
6
22
(1500)
5V
K20
Engine Control Module
G110

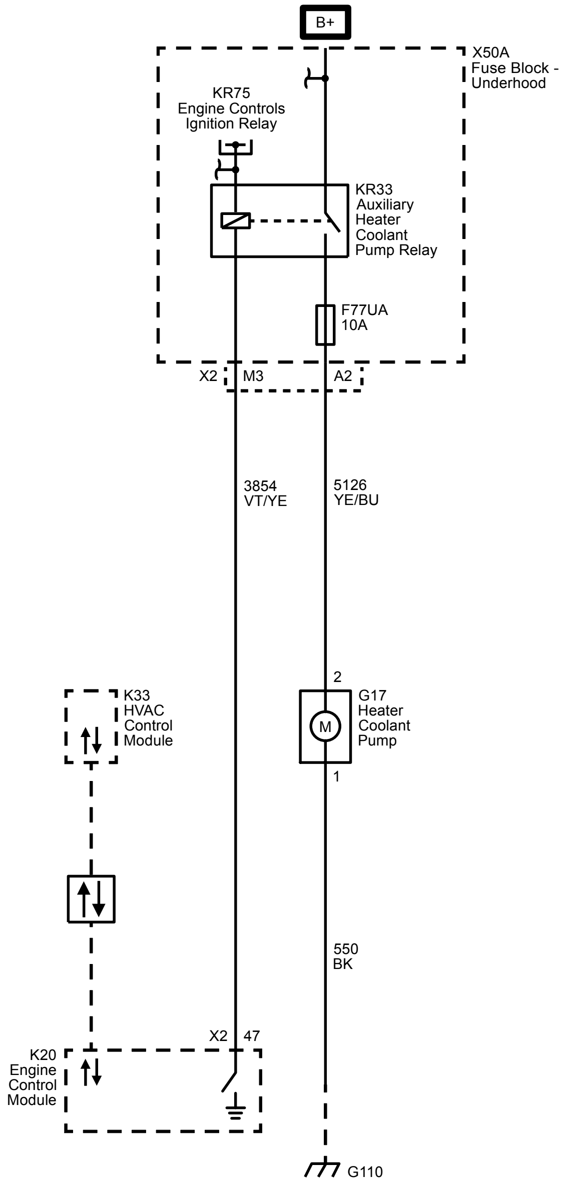
LOC
DESC

## Ambient Light/Sunload Sensor and Mode Doors


Theft Deterrent System Schematics
Headlights/ Daytime Running Lights (DRL) Schematics
728 GY 1
278 WH/BU 5
4
3
B10B Ambient Light/ Sunload Sensor
A90 Logic
-UE1
-UE1
-UE1
UE1
4
2
6
734 BU/WH
1783 YE/VT
1783 YE/VT
590 GY
1791 BK/YE
X215
11
13
13
12
10
734 BU/WH
1783 YE/VT
1783 YE/VT
590 GY
X1
4
14
13
20
K33 HVAC Control Module
5V
X3
3
X2
17
598 GY/RD
X3
4
17
18
12
13
X4
6
7
J257
119 WH 5
598 GY/RD 3
2275 WH/GN 2
1614 GN 5
598 GY/RD 3
1838 VT/GN 2
1199 BU/BN 5
598 GY/RD 3
733 BU/YE 2
1236 WH/BK 5
598 GY/RD 3
1646 BN/BU 2
1791 BK/YE
M
M37L Mode Door Actuator - Left
M
M4 Air Inlet Door Actuator
M
M6L Air Temperature Door Actuator - Left
M
M6R Air Temperature Door Actuator - Right
6 2273 YE/BN
1 1791 BK/YE
6 2274 YE/BK
1 1791 BK/YE
6 2210 GY/GN
1 1791 BK/YE
6 2778 GY/BK
1 1791 BK/YE
J255
1791 BK/YE
X3
2
16
11
X4
5
X2
18


J258
407 BK/YE
B7H Air Temperature Sensor - Duct Left Upper
B7D Air Temperature Sensor - Duct Left Lower
B7J Air Temperature Sensor - Duct Right Upper
B7E Air Temperature Sensor - Duct Right Lower
B39 A/C Evaporator Temperature Sensor
516 BU
516 GN
517 YE
520 RD
6137 GY
X3 9
1
X4 11
9
12
X3 20
K33 HVAC Control Module
X2 7
5
X1 7
5V
6
2
RH%
12
RH
5
HP5
7566 BK/BU
597 YE/RD
7565 GY/GN
7564 GY/BU
3197 YE/BU
X208 2
9
3
4
7
1
4
2
5
B160 Windshield Temperature and Inside Moisture Sensor
A90 Logic
3
X51L Fuse Block - Instrument Panel Left
KR73 Ignition Main Relay
F22DL 15A
X2 15
539 VT/GY
X215 5
J216
3195 VT
3196 YE/D-GN
B+
X50D Fuse Block - Battery
F1UD 100A
X1 1
642 RD/GY
X217 2
X2 A
X1 2
1
4
B+
IGN
E40 Electrical Auxiliary Heater
X3 A
1050 BK
G210

# Heater Coolant Pump (HP5)


B+
X50A
Fuse Block -
Underhood
KR75
Engine Controls
Ignition Relay
KR33
Auxiliary
Heater
Coolant
Pump Relay
F77UA
10A
X2
M3
A2
3854
VT/YE
5126
YE/BU
2
G17
Heater
Coolant
Pump
M
1
K33
HVAC
Control
Module
550
BK
X2
47
K20
Engine
Control
Module
G110

# Description and Operation

## Automatic HVAC Description and Operation

The air temperature and the air delivery description and operation are divided into eight areas:

- HVAC Control Components
- Air Speed (Front)
- Air Speed (Rear)
- Air Delivery (Front)
- Air Delivery (Rear)
- Heating and A/C Operation
- Recirculation Operation
- Automatic Operation
- Engine Coolant
- A/C Cycle

### HVAC Control Components

#### HVAC Control

The HVAC control contains all switches, buttons, and dials which are required to control the functions of the HVAC system and serve as interface between the operator and the HVAC control module. The selected values are passed to the HVAC control module via LIN-Bus.

#### HVAC Control Module

The HVAC control module is a GMLAN device that interfaces between the operator and the HVAC system to maintain and control desired air temperature and air distribution settings. The battery positive voltage circuit provides power that the HVAC control module uses for keep alive memory. If the battery positive voltage circuit loses power, all HVAC DTCs and settings will be erased from keep alive memory. The body control module (BCM), which is the vehicle mode master, provides a device ON-Signal. The HVAC control module provides blower, air delivery mode and air temperature settings.

The HVAC control module supports the following features:

| Feature | Availability |
|---|---|
| Afterblow | Available if reprogrammed by the technician |
| Purge | Yes |
| Personalization | Yes |
| Actuator Calibration | Yes |

#### Actuators

Doors in the HVAC case assembly are used to control air flow. The HVAC control module operates the doors through the use of actuators, with one actuator being used for each door. The system has the following air control doors and associated actuators: mode, left and right temperature, and recirculation.

Each actuator used in the system is a 5-wire bi-directional electric motor that incorporate a feedback potentiometer. The five circuits are, low reference, 5 V reference, actuator position signal, and two control circuits. The control circuits use either a ground or 12 V value to coordinate the actuator movement. In order to move the actuator, the HVAC control module grounds one of the control circuits while providing the other with 12 V. The HVAC control module reverses the polarity of the control circuits to move the actuator in the opposite direction.

When the actuator shaft rotates, the potentiometer’s sliding contact changes the door position signal between 0–5 V. The HVAC control module converts the voltage signal to counts. The total range of the counts is 0–1024, with an operating range between 20–1000. The actual operating range of an actuator is determined during calibration. During calibration, the actuator is moved though its full range of travel and the module stores the minimum and maximum value. Based on the desired system operation, the module sets a commanded, or targeted, value for the actuators. The control circuits are operated to move the door to the required position, and the changing position signal is sent to the module. Once the actual position signal and the commanded value are the same, the module ceases operating the control circuits and the actuator (and door) remain in the desired position.

#### Blower Motor

The blower motor control module is an interface between the HVAC control module and the blower motor. The blower motor speed control from the HVAC control module, battery positive and ground circuits enable the blower motor control module to operate. The HVAC control module provides a pulse width modulation (PWM) signal to the blower motor control module in order to command the blower motor speed. The blower motor control module transfers the PWM signal into a corresponding blower motor voltage.

#### Duct Temperature Sensors

The air temperature sensors are 2-wire negative temperature co-efficient thermistors. The sensors operate within a temperature range of −40 to +85°C (−40 to +185°F). The sensors are installed in the air distribution ducts and measure the temperature of the air that streams from the ducts. The HVAC control module uses these values to adjust the mixed air flap position according to the requested temperature.

#### Evaporator Temperature Sensor

The evaporator temperature sensor is a 2-wire negative temperature co-efficient thermistor. The sensor operates within a temperature range of −40 to +85°C (−40 to +185°F). The sensor is installed at the evaporator and measures its temperature. If the temperature drops under 3°C (38°F), the compressor will be switched off in order to prevent evaporator icing.

### A/C Refrigerant Pressure Sensor

The A/C refrigerant pressure sensor is a 3-wire piezoelectric pressure transducer. A 5 V reference voltage, low reference, and signal circuits enable the sensor to operate. The A/C pressure signal can be between 0.2–4.8 V. When the A/C refrigerant pressure is low, the signal value is near 0 V. When the A/C refrigerant pressure is high, the signal value is near 5 V. The engine control module (ECM) converts the voltage signal to a pressure value. When pressure is too high or too low, the ECM will not allow the A/C compressor clutch to engage.

### A/C Compressor

The A/C compressor uses a conventional belt driven magnetic clutch to engage and mechanically turn the compressor. When the A/C switch is pressed, the HVAC control module sends an A/C request message to the ECM via serial data. If specific criteria is met, the ECM then grounds the A/C compressor clutch relay control circuit, which will switch the A/C compressor clutch relay. With the relay contacts closed, battery voltage is supplied to the permanently grounded A/C compressor clutch. The A/C compressor clutch will then be activated.

This A/C system utilizes a variable displacement solenoid valve to alter the amount of displacement created by the turning of the compressor. The HVAC control module provides both battery voltage and a pulse width modulated ground to the variable displacement solenoid valve. When the A/C switch is pressed, the HVAC control module grounds the variable displacement solenoid using a (PWM) signal in order to determine the amount of compressor displacement. The performance of the A/C compressor is regulated based on cooling load.

### Ambient Light/Sunload Sensor

The sunload sensor is connected to ground and to a 12 V clocked power supply through the HVAC control module. This clocked power supply is to power the sensor electronics and to work as a clock generator to the sunload sensor micro controller. The sensor uses a pulse signal for data identification and transferring the sun intensity measurement. At each positive transition from the clocked supply input, the sunload sensor micro controller will shift channels enabling new intensity measurement on the signal output to the HVAC control module. The signal voltage varies between 0–4 V.

The passenger compartment temperature sensor is a negative temperature co-efficient thermistor. A signal and low reference circuit enables the sensor to operate. As the air temperature increases, the sensor resistance decreases. The sensor signal varies between 0–5 V.

Bright or high intensity light causes the vehicles interior temperature to increase. The HVAC system compensates for the increased temperature by diverting additional cool air into the vehicle.

## Air Speed

The blower control switch is part of the HVAC controls. The selected value of the blower switch position is sent to the HVAC control module via LIN-Bus. The blower motor control circuitry is integrated within the blower motor assembly. The HVAC control module provides a low side pulse width modulation (PWM) signal to the blower motor to request a specific motor speed. The blower motor translates the PWM signal and drives the motor accordingly.

### Afterblow

Afterblow is a feature that dries the evaporator core by operating the blower motor after the engine is turned OFF. This reduces the amount of microbial growth that can create undesirable odors. The vehicle does not come equipped with the afterblow feature turned ON. If the afterblow feature is required due to an odor concern, it must be enabled using the scan tool Afterblow configuration function.

After the HVAC control module has been programmed for afterblow, the following conditions must be met for afterblow to operate:

- The engine has been turned OFF for at least 30 minutes.
- The ambient air temperature is at least 21°C (70°F).
- The A/C compressor operated for more than 2 minutes before shut down.
- The system voltage is at least 12 volts.

Once the above conditions have been met, the blower motor will perform the following sequence up to 5 times. This could last up to an hour:

1. The blower motor will be OFF for 7–11 minutes.
2. The blower motor will RUN for 25–30 seconds.

## Air Delivery

The HVAC control module controls the distribution of air by the use of recirculation and mode door actuator. The modes that may be selected are:

- Defrost
- Defog
- Panel
- Floor

The desired air distribution mode can be selected with the air distribution switches at the HVAC control. The HVAC control delivers the values to the HVAC control module via LIN-Bus. The HVAC control module controls the mode door actuator so that it drives the flap to the calculated position. Depending on the position of the flap, air is distributed through various ducts leading to the outlets in the dash. Turning the mode flap to the defrost position, the HVAC control module will move the recirculation actuator to outside air, reducing window fogging. When defrost is selected, the blower motor will be activated, regardless of the coolant temperature. The HVAC control module enables a high volume of air delivered to the front defrost vents. A/C is available in all modes.

The rear window defogger does not affect the HVAC system.

## Heating and A/C Operation

The purpose of the heating and A/C system is to provide heated and cooled air to the interior of the vehicle. The A/C system will also remove humidity from the interior and reduce windshield fogging. Regardless of the temperature setting, the following can affect the rate that the HVAC system can achieve the desired temperature:

- Recirculation actuator setting
- Difference between inside and desired temperature
- Blower motor speed setting
- Mode setting

When the A/C switch is pressed, the HVAC controls sends a signal to the HVAC control module via LIN-Bus. The HVAC control module evaluates this signal and sends an A/C request signal to the ECM via CAN-Bus. The ECM checks all preconditions before releasing and if all conditions are met sends a release signal back to the HVAC control module. The ECM will provide a ground for the A/C compressor relay enabling it to close its internal contacts to send battery voltage to the A/C compressor clutch coil. The A/C compressor clutch will be activated. The performance of the A/C compressor is regulated via a variable A/C compressor solenoid valve. The HVAC control module supplies battery voltage to the A/C compressor. When the A/C switch is pressed, the HVAC control module provides a pulse width modulation (PWM) signal to the A/C compressor solenoid valve in order to command the performance of the A/C compressor.

The following conditions must be met in order to activate the A/C compressor:

- Battery voltage is between 9–18 V
- Engine coolant temperature is less than 124°C (255°F)
- Engine speed is greater than 600 RPM
- Engine speed is less than 5 500 RPM
- A/C high side pressure is between 269–2 929 kPa (39–425 PSI)
- Throttle position is less than 100%
- Evaporator temperature is greater than 3°C (38°F)
- ECM does not detect immoderate torque load
- ECM does not detect insufficient idle quality
- The ambient temperature is above 1°C (34°F)

The sensor information is used by the ECM to determine the following:

- The A/C high side pressure
- An A/C system load on the engine
- An immoderate A/C high side pressure
- The heat load at the A/C condenser

The air streams into the passenger compartment through the heater core and the evaporator core. The air temperature actuator drives the mixed air flap to direct the airflow. If the interior temperature should be increased, the mixed air flap is put into the position in which more air streams through the heater core. If the interior temperature should be decreased, the mixed air flap is put into the position in which more air streams through the evaporator core.

### Recirculation Operation

The recirculation switch is integrated into the HVAC control. The selected recirculation switch position is sent to the HVAC control module via LIN-Bus. The HVAC control module controls the air intake using the recirculation actuator. In recirculation mode the recirculation flap opens in order to circulate the air within the vehicle. In fresh air mode the recirculation flap is closed in order to route outside air into the vehicle.

### Automatic Operation

In automatic operation, the HVAC control module maintains the comfort level inside of the vehicle by controlling the A/C compressor clutch, the blower motor, the air temperature actuators, mode actuator and recirculation actuator.

To put the HVAC system in automatic mode, the following is required:

1. The auto switch must be activated.
2. The air temperature switch must not be in either the full hot or full cold position.

Once the desired temperature is reached, the blower motor, mode, recirculation and temperature actuators automatically adjust to maintain the temperature selected. The HVAC control module performs the following functions to maintain the desired air temperature:

- Monitors the following sensors:
  - Ambient air temperature sensor
  - Lower left duct air temperature sensor
  - Lower right duct air temperature sensor
  - Upper left duct air temperature sensor
  - Upper right duct air temperature sensor
  - Ambient light/sunload sensor
- Regulate the blower motor speed
- Position the air temperature actuators
- Position the mode door actuator
- Position the recirculation actuator
- Request A/C operation
- Control of the A/C compressor

When the warmest position is selected in automatic operation the blower speed will increase gradually until the vehicle reaches normal operating temperature. When normal operating temperature is reached the blower stays on high speed and the air temperature actuators stays in the full heat position.

When the coldest position is selected in automatic operation the blower stays on high and the air temperature actuators stay in full cold position. The mode actuator remains in the panel position and the recirculation actuator will remain in the recirculation position.

Under cold ambient temperatures, the automatic HVAC system provides heat in the most efficient manner. The operator can select an extreme temperature setting but the system will not warm the vehicle any faster. Under warm ambient temperatures, the automatic HVAC system also provides air conditioning in the most efficient manner. Selecting an extreme cool temperature will not cool the vehicle any faster.

## Electric Auxiliary Heater

Some models are equipped with an auxiliary electric heater to assist in warming the passenger compartment when the engine coolant has not sufficiently warmed to operating temperature. The heater is a 12 V positive temperature coefficient heating element located in the HVAC case just downstream of the traditional heater core. The HVAC control module will activate it when the outside temperature is less than approximately 8°C (46°F), the engine coolant temperature is less than approximately 75°C (167°F), and the temperature blend door is commanded to the full hot position.

## Engine Coolant

Engine coolant is the essential element of the heating system. The thermostat controls the normal engine operating coolant temperature. The thermostat also creates a restriction for the cooling system that promotes a positive coolant flow and helps prevent cavitation.

Coolant enters the heater core through the inlet heater hose, in a pressurized state. The heater core is located inside the HVAC control module. The ambient air drawn through the HVAC control module absorbs the heat of the coolant flowing through the heater core. Heated air is distributed to the passenger compartment, through the HVAC control module, for passenger comfort. Opening or closing the air temperature flap controls the amount of heat delivered to the passenger compartment. The coolant exits the heater core through the return heater hose and recirculates back to the engine cooling system.

## A/C Cycle

Refrigerant is the key element in an air conditioning system. There are currently two approved Environmental Protection Agency refrigerants. They are R134a and R-1234yf, and either one could be used in this vehicle. R-1234yf is a newly EPA approved refrigerant, and it will require the use of an updated Air Conditioning Refrigerant Recovery/Recharge Cart/System. Refer to CELL Link Error - Link target cell (cell ID 48139) is invalid for this publication. for correct tool usage. Both refrigerants are very low temperature gases that can transfer the undesirable heat and moisture from the passenger compartment to the outside air.

The compressor builds pressure on the vapor refrigerant. Compressing the refrigerant also adds heat to the refrigerant. The refrigerant is discharged from the compressor, through the discharge hose, and forced to flow to the condenser and then through the balance of the A/C system. The A/C system is mechanically protected with the use of a high pressure relief valve. If the A/C refrigerant pressure sensor fails or if the refrigerant system becomes restricted and refrigerant pressure continued to rise, the high pressure relief will pop open and release refrigerant from the system.

Compressed refrigerant enters the condenser in a high temperature, high pressure vapor state. As the refrigerant flows through the condenser, the heat of the refrigerant is transferred to the ambient air passing through the condenser. Cooling the refrigerant causes the refrigerant to condense and change from a vapor to a liquid state.

The condenser is located in front of the radiator for maximum heat transfer. The condenser is made of aluminum tubing and aluminum cooling fins, which allows rapid heat transfer for the refrigerant. The semi-cooled liquid refrigerant exits the condenser and flows to the Receiver/Dehydrator(R/D).

The R/D contains desiccant that absorbs moisture that may be in the refrigerant system. The R/D also acts as a storage vessel to ensure that a steady flow of liquid reaches the thermal expansion valve. The refrigerant exits the R/D and flows through the liquid line to the thermal expansion valve.

The thermal expansion valve is located at the front of dash and attaches to the evaporator inlet and outlet pipes. The thermal expansion valve is the dividing point for the high and the low pressure sides of the A/C system. As the refrigerant passes through the thermal expansion valve, the pressure on the refrigerant is lowered. The thermal expansion valve also meters the amount of liquid refrigerant that can flow into the evaporator.

Refrigerant exiting the thermal expansion valve flows into the evaporator core in a low pressure, liquid state. Ambient air is drawn through the HVAC control module and passes through the evaporator core. Warm and moist air will cause the liquid refrigerant boil inside of the evaporator core. The boiling refrigerant absorbs heat from the ambient air and draws moisture onto the evaporator. The refrigerant exits the evaporator through the suction line and back to the A/C compressor, in a vapor state, and completing the A/C cycle of heat removal. At the A/C compressor, the refrigerant is compressed again and the cycle of heat removal is repeated.

The conditioned air is distributed through the HVAC control module for passenger comfort. The heat and moisture removed from the passenger compartment will also change form, or condense, and is discharged from the HVAC control module as water.

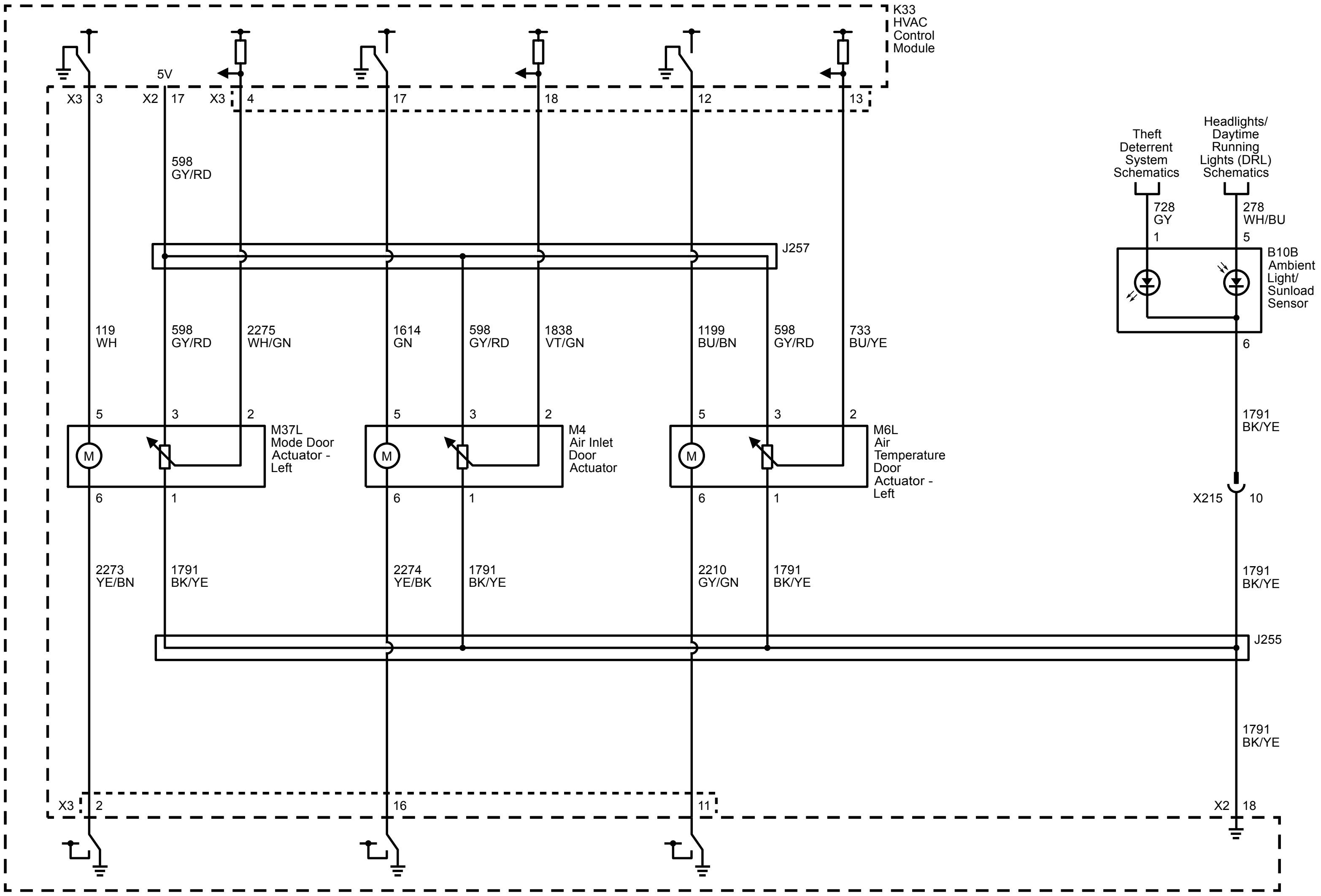
# HVAC

## HVAC - Manual

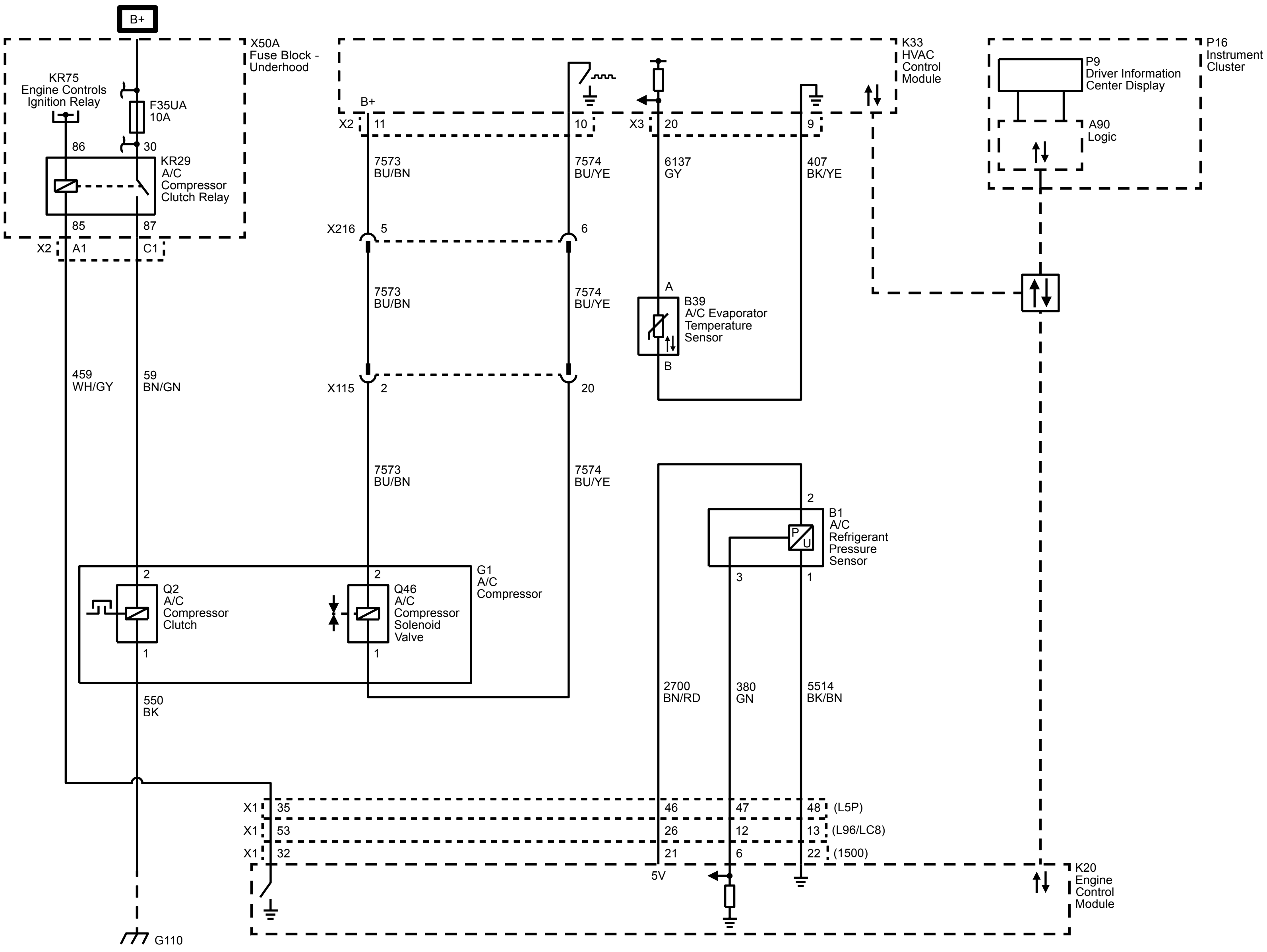
### Schematic and Routing Diagrams

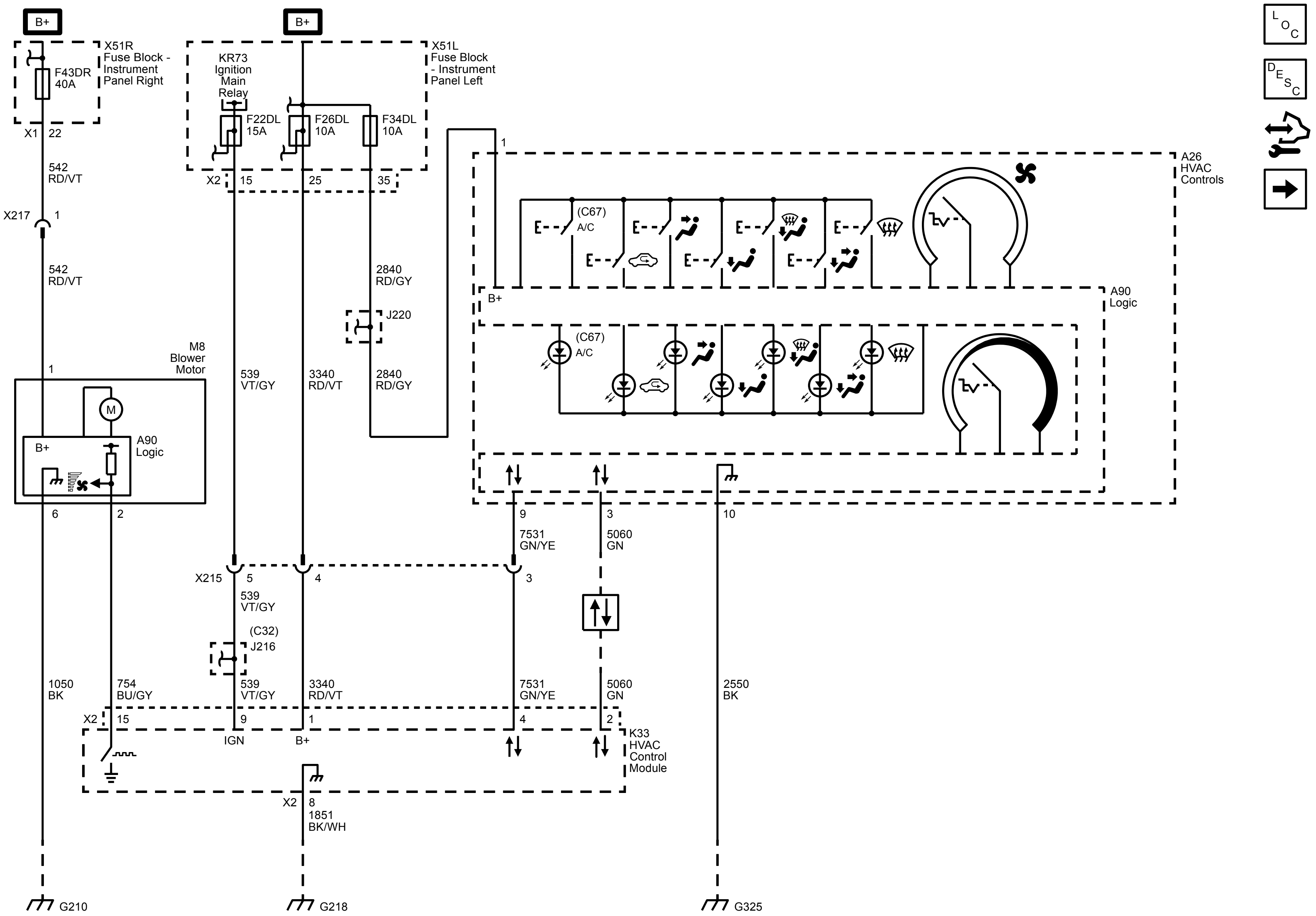
### HVAC Schematics

### Ambient Light/Sunload Sensor and Mode Doors

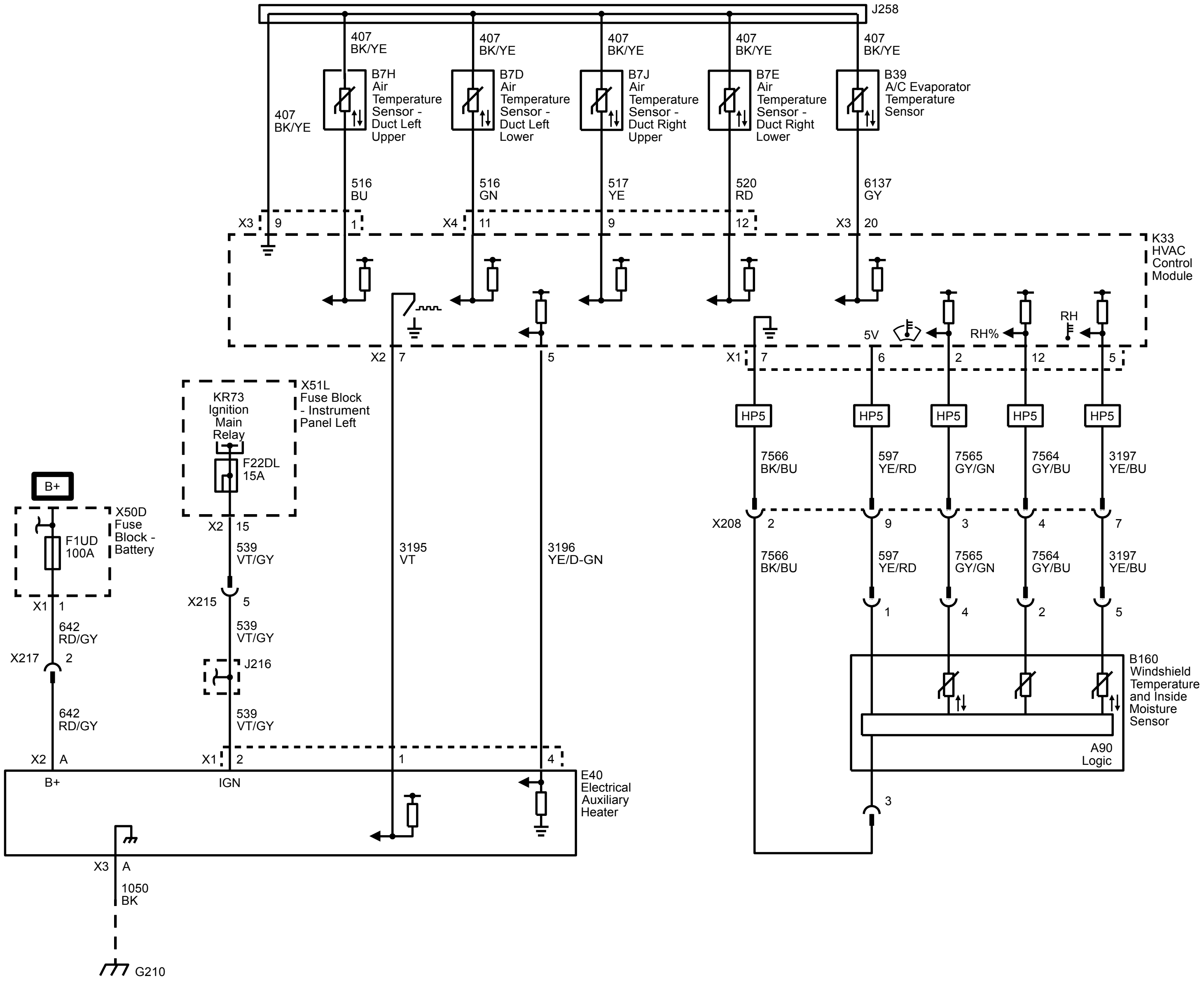

K33
HVAC
Control
Module
5V
X3 3
X2 17
X3 4
17
18
12
13
598
GY/RD
J257
119
WH
598
GY/RD
2275
WH/GN
1614
GN
598
GY/RD
1838
VT/GN
1199
BU/BN
598
GY/RD
733
BU/YE
5
3
2
M
M37L
Mode Door
Actuator -
Left
6
1
M4
Air Inlet
Door
Actuator
M6L
Air
Temperature
Door
Actuator -
Left
2273
YE/BN
1791
BK/YE
2274
YE/BK
1791
BK/YE
2210
GY/GN
1791
BK/YE
J255
X3 2
16
11
X2 18
Theft
Deterrent
System
Schematics
Headlights/
Daytime
Running
Lights (DRL)
Schematics
728
GY
278
WH/BU
1
5
B10B
Ambient
Light/
Sunload
Sensor
6
1791
BK/YE
X215
10
1791
BK/YE
1791
BK/YE

# A/C Compressor Controls

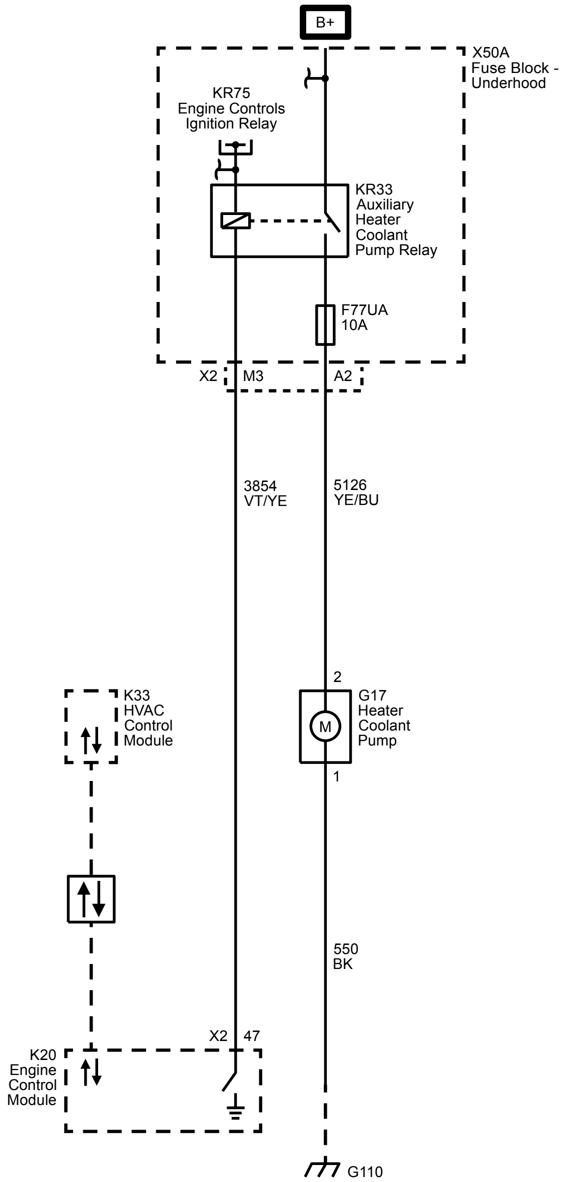

B+
X50A
Fuse Block -
Underhood
KR75
Engine Controls
Ignition Relay
F35UA
10A
86
30
KR29
A/C
Compressor
Clutch Relay
85
87
X2
A1
C1
459
WH/GY
59
BN/GN
K33
HVAC
Control
Module
B+
X2
11
10
X3
20
9
7573
BU/BN
7574
BU/YE
6137
GY
407
BK/YE
X216
5
6
7573
BU/BN
7574
BU/YE
A
B39
A/C Evaporator
Temperature
Sensor
B
X115
2
20
7573
BU/BN
7574
BU/YE
2
B1
A/C
Refrigerant
Pressure
Sensor
P
U
3
1
2
Q2
A/C
Compressor
Clutch
1
2
Q46
A/C
Compressor
Solenoid
Valve
1
G1
A/C
Compressor
550
BK
2700
BN/RD
380
GN
5514
BK/BN
P16
Instrument
Cluster
P9
Driver Information
Center Display
A90
Logic
X1
35
46
47
48
(L5P)
X1
53
26
12
13
(L96/LC8)
X1
32
21
6
22
(1500)
5V
K20
Engine
Control
Module
G110


B+
X51R Fuse Block - Instrument Panel Right
F43DR 40A
X1 22
542 RD/VT
X217 1
M8 Blower Motor
M
A90 Logic
B+
6 2
1050 BK
754 BU/GY
G210
B+
X51L Fuse Block - Instrument Panel Left
KR73 Ignition Main Relay
F22DL 15A
F26DL 10A
F34DL 10A
X2 15 25 35
2840 RD/GY
J220
539 VT/GY
3340 RD/VT
X215 5 4 3
(C32) J216
X2 15 9 1 4 2
IGN B+
K33 HVAC Control Module
X2 8 1851 BK/WH
G218
A26 HVAC Controls
A90 Logic
(C67) A/C
1 B+
9 3 10
7531 GN/YE
5060 GN
2550 BK
G325
L O C
D E S C

# Auxiliary Heater (C32) and Temperature Sensors


J258
407
BK/YE
B7H
Air
Temperature
Sensor -
Duct Left
Upper
B7D
Air
Temperature
Sensor -
Duct Left
Lower
B7J
Air
Temperature
Sensor -
Duct Right
Upper
B7E
Air
Temperature
Sensor -
Duct Right
Lower
B39
A/C Evaporator
Temperature
Sensor
516
BU
516
GN
517
YE
520
RD
6137
GY
X3 9
1
X4 11
9
12
X3 20
K33
HVAC
Control
Module
5V
RH%
RH
X2 7
5
X1 7
6
2
12
5
HP5
7566
BK/BU
597
YE/RD
7565
GY/GN
7564
GY/BU
3197
YE/BU
X208 2
9
3
4
7
1
4
2
5
B160
Windshield
Temperature
and Inside
Moisture
Sensor
A90
Logic
3
KR73
Ignition
Main
Relay
X51L
Fuse Block
- Instrument
Panel Left
F22DL
15A
X2 15
539
VT/GY
X215 5
J216
B+
X50D
Fuse
Block -
Battery
F1UD
100A
X1 1
642
RD/GY
X217 2
3195
VT
3196
YE/D-GN
X2 A
X1 2
1
4
B+
IGN
E40
Electrical
Auxiliary
Heater
X3 A
1050
BK
G210

## Heater Coolant Pump (HP5)



B+
X50A
Fuse Block -
Underhood
KR75
Engine Controls
Ignition Relay
KR33
Auxiliary
Heater
Coolant
Pump Relay
F77UA
10A
X2
M3
A2
3854
VT/YE
5126
YE/BU
2
G17
Heater
Coolant
Pump
M
1
K33
HVAC
Control
Module
550
BK
X2
47
K20
Engine
Control
Module
G110

# Description and Operation

## Manual HVAC Description and Operation

The air temperature and the air delivery description and operation are divided into seven areas:

- HVAC Control Components
- Air Speed
- Air Delivery
- Heating and A/C Operation
- Recirculation Operation
- Engine Coolant
- A/C Cycle

### HVAC Control Components

#### HVAC Controls

The HVAC controls contains all switches, which are required to control the functions of HVAC and serve as interface between the operator and the HVAC control module. The selected values are passed to the HVAC control module via LIN-Bus.

#### HVAC Control Module

The HVAC control module is a GMLAN device that interfaces between the operator and the HVAC system to maintain and control desired air temperature and air distribution settings. The battery positive voltage circuit provides power that the HVAC control module uses for keep alive memory. If the battery positive voltage circuit loses power, all HVAC DTCs and settings will be erased from keep alive memory. The body control module (BCM), which is the vehicle mode master, provides a device ON-Signal. The HVAC control module provides blower, air delivery mode and air temperature settings.

The HVAC control module supports the following features:

| Feature | Availability |
|---|---|
| Afterblow | Yes |
| Personalization | Yes |
| Actuator Calibration | Yes |

#### Actuators

Doors in the HVAC case assembly are used to control air flow. The HVAC control module operates the doors through the use of actuators, with one actuator being used for each door. The system has the following air control doors and associated actuators: mode, temperature, and recirculation.

Each actuator used in the system is a 5-wire bi-directional electric motor that incorporate a feedback potentiometer. The five circuits are, low reference, 5 V reference, actuator position signal, and two control circuits. The control circuits use either a ground or 12 V value to coordinate the actuator movement. In order to move the actuator, the HVAC control module grounds one of the control circuits while providing the other with 12 V. The HVAC control module reverses the polarity of the control circuits to move the actuator in the opposite direction.

When the actuator shaft rotates, the potentiometer’s sliding contact changes the door position signal between 0–5 V. The HVAC control module converts the voltage signal to counts. The total range of the counts is 0–1024, with an operating range between 20–1000. The actual operating range of an actuator is determined during calibration. During calibration, the actuator is moved though its full range of travel and the module stores the minimum and maximum value. Based on the desired system operation, the module sets a commanded, or targeted, value for the actuators. The control circuits are operated to move the door to the required position, and the changing position signal is sent to the module. Once the actual position signal and the commanded value are the same, the module ceases operating the control circuits and the actuator (and door) remain in the desired position.

#### Blower Motor Assembly

The blower motor speed control signal from the HVAC Control Module, battery positive and ground circuits enable the blower motor to operate. The blower motor control circuitry is integrated within the blower motor assembly. The HVAC control module provides a low side pulse width modulation (PWM) signal to the blower motor to request a specific motor speed. The blower motor translates the PWM signal and drives the motor accordingly.

#### Evaporator Temperature Sensor

The evaporator temperature sensor is a 2-wire negative temperature co-efficient thermistor. The sensor operates within a temperature range of −40 to +85°C (−40 to +185°F). The sensor is installed at the evaporator and measures its temperature. If the temperature drops under 3°C (38°F), the compressor will be switched off in order to prevent evaporator icing.

#### A/C Refrigerant Pressure Sensor

The A/C refrigerant pressure sensor is a 3-wire piezoelectric pressure transducer. A 5 V reference voltage, low reference, and signal circuits enable the sensor to operate. The A/C pressure signal can be between 0.2–4.8 V. When the A/C refrigerant pressure is low, the signal value is near 0 V. When the A/C refrigerant pressure is high, the signal value is near 5 V. The engine control module (ECM) converts the voltage signal to a pressure value. When pressure is too high or too low, the ECM will not allow the A/C compressor clutch to engage.

#### A/C Compressor

The A/C compressor uses a conventional belt driven magnetic clutch to engage and mechanically turn the compressor. When the A/C switch is pressed, the HVAC control module sends an A/C request message to the ECM via serial data. If specific criteria is met, the ECM then grounds the A/C compressor clutch relay control circuit, which will switch the A/C compressor clutch relay. With the relay contacts closed, battery voltage is supplied to the permanently grounded A/C compressor clutch. The A/C compressor clutch will then be activated.

This A/C system utilizes a variable displacement solenoid valve to alter the amount of displacement created by the turning of the compressor. The HVAC control module provides both battery voltage and a pulse width modulated ground to the variable displacement solenoid valve. When the A/C switch is pressed, the HVAC control module grounds the variable displacement solenoid using a (PWM) signal in order to determine the amount of compressor displacement. The performance of the A/C compressor is regulated based on cooling load.

## Air Speed

The blower control switch is part of the HVAC controls. The selected value of the blower switch position is sent to the HVAC control module via LIN-Bus. The blower motor control circuitry is integrated within the blower motor assembly. The HVAC control module provides a low side pulse width modulation (PWM) signal to the blower motor to request a specific motor speed. The blower motor translates the PWM signal and drives the motor accordingly.

## Air Delivery

The HVAC control module controls the distribution of air by the use of recirculation and mode actuator. The modes that may be selected are:

- Defrost
- Defog
- Panel
- Floor

The desired air distribution mode can be selected with the air distribution switches at the HVAC controls. The HVAC controls delivers the values to the HVAC control module via LIN-Bus. The HVAC control module controls the air distribution actuator so that it drives the flap to the calculated position. Depending on the position of the flap, air is distributed through various ducts leading to the outlets in the dash. Turning the mode flap to the defrost position, the HVAC control module will move the recirculation actuator to outside air, reducing window fogging. When defrost is selected, the blower motor will be activated, regardless of the coolant temperature. The HVAC control module enables a high volume of air delivered to the front defrost vents. A/C is available in all modes.

The rear window defogger does not affect the HVAC system.

## Heating and A/C Operation

The purpose of the heating and A/C system is to provide heated and cooled air to the interior of the vehicle. The A/C system will also remove humidity from the interior and reduce windshield fogging. Regardless of the temperature setting, the following can affect the rate that the HVAC system can achieve the desired temperature:

- Recirculation actuator setting
- Difference between inside and desired temperature
- Blower motor speed setting
- Mode setting

When the A/C switch is pressed, the HVAC controls sends a signal to the HVAC control module via LIN-Bus. The HVAC control module evaluates this signal and sends an A/C request signal to the ECM via CAN-Bus. The ECM checks all preconditions before releasing and if all conditions are met sends a release signal back to the HVAC control module. The ECM will provide a ground for the A/C compressor relay enabling it to close its internal contacts to send battery voltage to the A/C compressor clutch coil. The A/C compressor clutch will be activated. The performance of the A/C compressor is regulated via a variable A/C compressor solenoid valve. The HVAC control module supplies battery voltage to the A/C compressor. When the A/C switch is pressed, the HVAC control module provides a pulse width modulation (PWM) signal to the A/C compressor solenoid valve in order to command the performance of the A/C compressor.

The following conditions must be met in order to activate the A/C compressor:

- Battery voltage is between 9–18 V
- Engine coolant temperature is less than 124°C (255°F)
- Engine speed is greater than 600 RPM
- Engine speed is less than 5 500 RPM
- A/C high side pressure is between 269–2 929 kPa (39–425 PSI)
- Throttle position is less than 100%
- Evaporator temperature is greater than 3°C (38°F)
- ECM does not detect immoderate torque load
- ECM does not detect insufficient idle quality
- The ambient temperature is above 1°C (34°F)

The sensor information is used by the ECM to determine the following:

- The A/C high side pressure
- An A/C system load on the engine
- An immoderate A/C high side pressure
- The heat load at the A/C condenser

The air streams into the passenger compartment through the heater core and the evaporator core. The air temperature actuator drives the mixed air flap to induce the airflow. If the interior temperature should be increased, the mixed air flap is put into the position in which more air streams through the heater core. If the interior temperature should be decreased, the mixed air flap is put into the position in which more air streams through the evaporator core.

## Recirculation Operation

The recirculation switch is part of the HVAC controls. The selected recirculation switch position is sent to the HVAC control module via LIN-Bus. The HVAC control module controls the air intake through the recirculation actuator. The recirculation switch closes the recirculation flap in order to circulate the air within the vehicle. Through renewed selection of the recirculation switch, the recirculation flap is opened again in order to route outside air into the vehicle.

Recirculation is only available if the defrost mode is not active. When the defrost mode is active, the recirculation actuator opens the recirculation flap and outside air is circulated to the windshield to reduce fogging.

## Electric Auxiliary Heater

Some models are equipped with an auxiliary electric heater to assist in warming the passenger compartment when the engine coolant has not sufficiently warmed to operating temperature. The heater is a 12 V positive temperature coefficient heating element located in the HVAC case just downstream of the traditional heater core. The HVAC control module will activate it when the outside temperature is less than approximately 8°C (46°F), the engine coolant temperature is less than approximately 75°C (167°F), and the temperature blend door is commanded to the full hot position.

## Engine Coolant

Engine coolant is the essential element of the heating system. The thermostat controls the normal engine operating coolant temperature. The thermostat also creates a restriction for the cooling system that promotes a positive coolant flow and helps prevent cavitation.

Coolant enters the heater core through the inlet heater hose, in a pressurized state. The heater core is located inside the HVAC module. The ambient air drawn through the HVAC module absorbs the heat of the coolant flowing through the heater core. Heated air is distributed to the passenger compartment, through the HVAC module, for passenger comfort. Opening or closing the air temperature flap controls the amount of heat delivered to the passenger compartment. The coolant exits the heater core through the return heater hose and recirculates back to the engine cooling system.

## A/C Cycle

Refrigerant is the key element in an air conditioning system. R-134a is presently the only Environmental Protection Agency approved refrigerant for automotive use. R-134a is a very low temperature gas that can transfer the undesirable heat and moisture from the passenger compartment to the outside air.

The compressor builds pressure on the vapor refrigerant. Compressing the refrigerant also adds heat to the refrigerant. The refrigerant is discharged from the compressor, through the discharge hose, and forced to flow to the condenser and then through the balance of the A/C system. The A/C system is mechanically protected with the use of a high pressure relief valve. If the A/C refrigerant pressure sensor fails or if the refrigerant system becomes restricted and refrigerant pressure continued to rise, the high pressure relief will pop open and release refrigerant from the system.

Compressed refrigerant enters the condenser in a high temperature, high pressure vapor state. As the refrigerant flows through the condenser, the heat of the refrigerant is transferred to the ambient air passing through the condenser. Cooling the refrigerant causes the refrigerant to condense and change from a vapor to a liquid state.

The condenser is located in front of the radiator for maximum heat transfer. The condenser is made of aluminum tubing and aluminum cooling fins, which allows rapid heat transfer for the refrigerant. The semi-cooled liquid refrigerant exits the condenser and flows to the Receiver/Dehydrator (R/D).

The R/D contains desiccant that absorbs moisture that may be in the refrigerant system. The R/D also acts as a storage vessel to ensure that a steady flow of liquid reaches the thermal expansion valve. The refrigerant exits the R/D and flows through the liquid line to the thermal expansion valve.

The thermal expansion valve is located at the front of dash and attaches to the evaporator inlet and outlet pipes. The thermal expansion valve is the dividing point for the high and the low pressure sides of the A/C system. As the refrigerant passes through the thermal expansion valve, the pressure on the refrigerant is lowered. The thermal expansion valve also meters the amount of liquid refrigerant that can flow into the evaporator.

Refrigerant exiting the thermal expansion valve flows into the evaporator core in a low pressure, liquid state. Ambient air is drawn through the HVAC module and passes through the evaporator core. Warm and moist air will cause the liquid refrigerant boil inside of the evaporator core. The boiling refrigerant absorbs heat from the ambient air and draws moisture onto the evaporator. The refrigerant exits the evaporator through the suction line and back to the A/C compressor, in a vapor state, and completing the A/C cycle of heat removal. At the A/C compressor, the refrigerant is compressed again and the cycle of heat removal is repeated.

The conditioned air is distributed through the HVAC module for passenger comfort. The heat and moisture removed from the passenger compartment will also change form, or condense, and is discharged from the HVAC module as water.

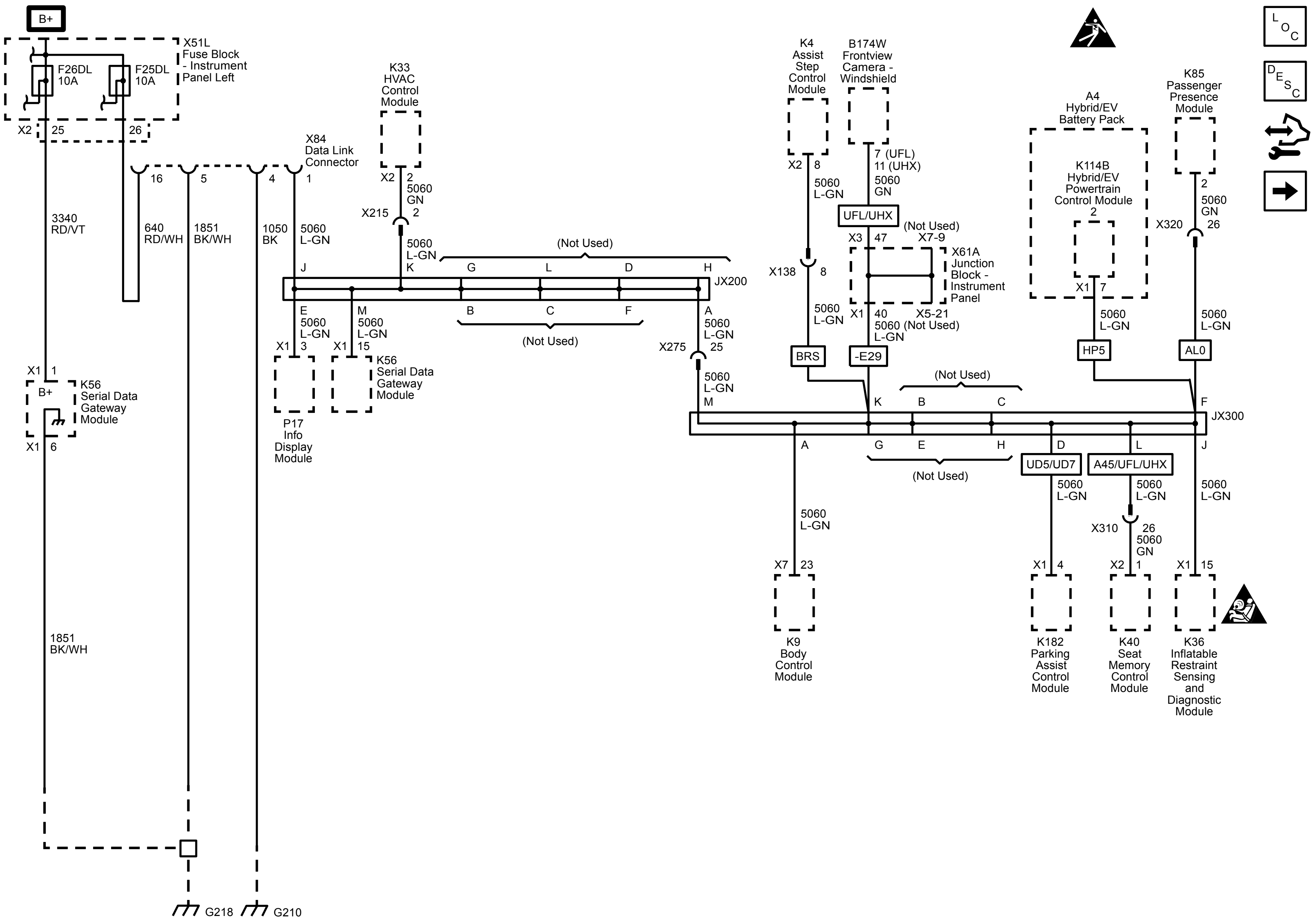
# Power and Signal Distribution

## Data Communications

### Schematic and Routing Diagrams

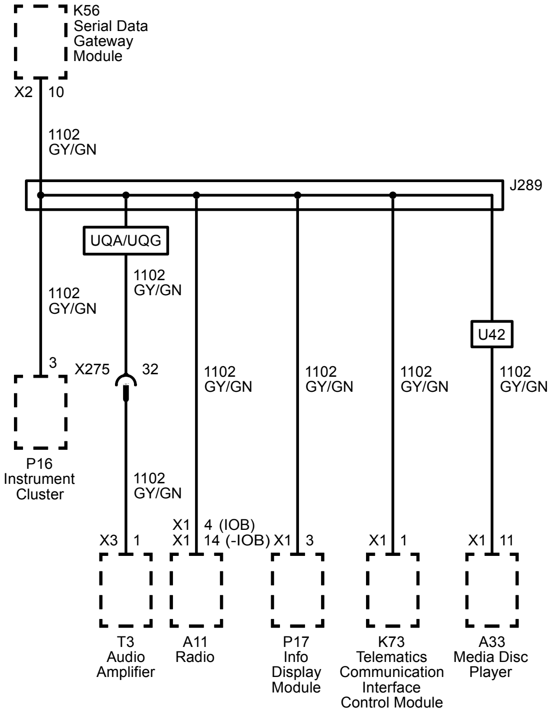
#### Data Communication Schematics

#### Data Link Power and Ground, and Low Speed GMLAN

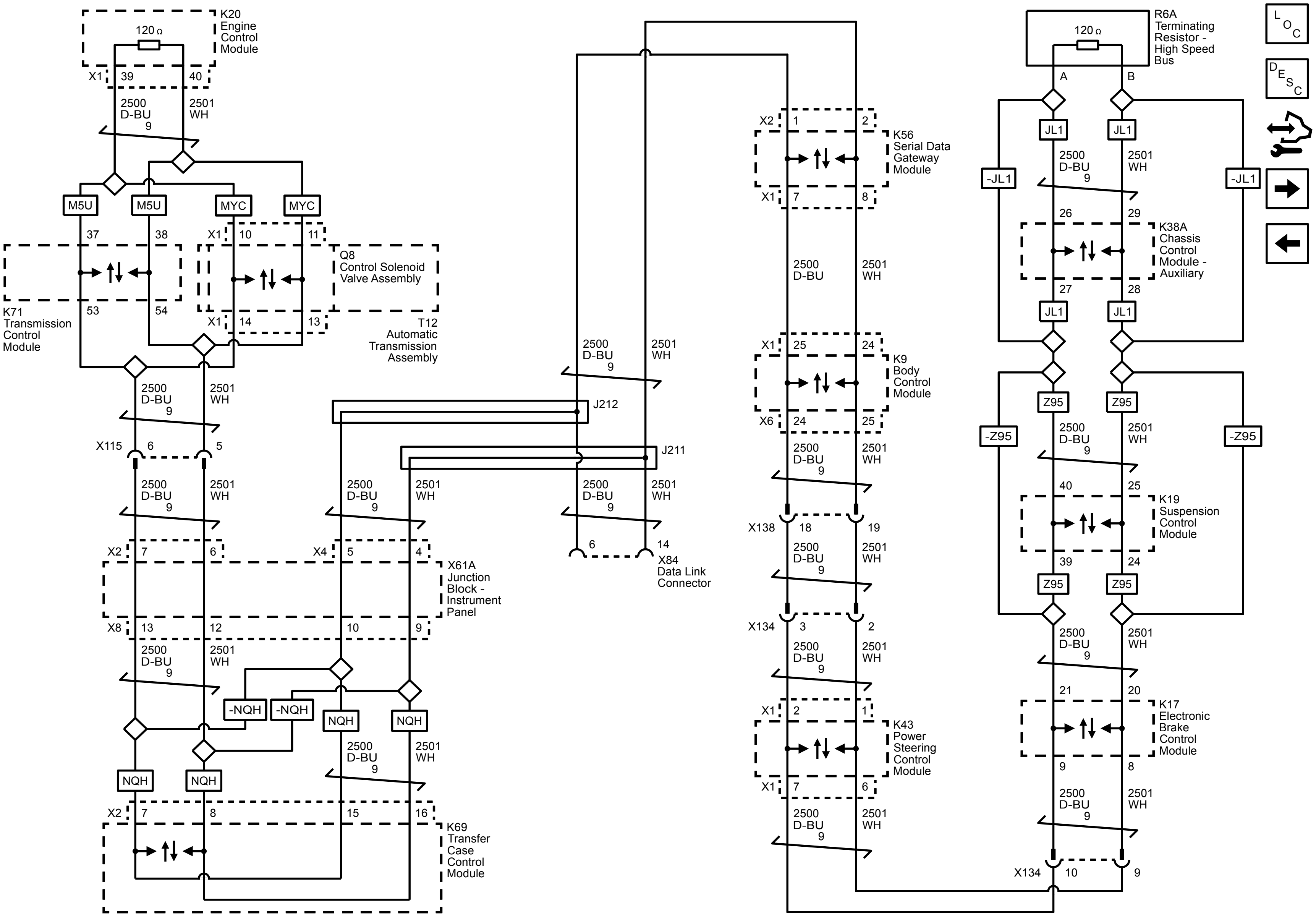


B+
X51L Fuse Block - Instrument Panel Left
F26DL 10A
F25DL 10A
X2 25 26
3340 RD/VT
640 RD/WH
1851 BK/WH
1050 BK
5060 L-GN
X84 Data Link Connector
16 5 4 1
K33 HVAC Control Module
X2 2 5060 GN
X215 2
5060 L-GN
(Not Used)
J K G L D H
JX200
E M B C F A
5060 L-GN
X1 3
X1 15
K56 Serial Data Gateway Module
(Not Used)
X275 25
5060 L-GN M
P17 Info Display Module
X1 1
B+
K56 Serial Data Gateway Module
X1 6
1851 BK/WH
G218
G210
K4 Assist Step Control Module
X2 8
5060 L-GN
X138 8
5060 L-GN
BRS
B174W Frontview Camera - Windshield
7 (UFL) 11 (UHX)
5060 GN
UFL/UHX
(Not Used)
X3 47
X7-9
X61A Junction Block - Instrument Panel
X1 40
X5-21
5060 (Not Used)
L-GN
-E29
A4 Hybrid/EV Battery Pack
K114B Hybrid/EV Powertrain Control Module
2
X1 7
5060 L-GN
HP5
K85 Passenger Presence Module
2
5060 GN
X320 26
5060 L-GN
AL0
(Not Used)
K B C F
JX300
A G E H D L J
(Not Used)
UD5/UD7
A45/UFL/UHX
5060 L-GN
X310 26 5060 GN
5060 L-GN
X7 23
K9 Body Control Module
X1 4
K182 Parking Assist Control Module
X2 1
K40 Seat Memory Control Module
X1 15
K36 Inflatable Restraint Sensing and Diagnostic Module
LOC
DESC

# Gateway Isolated Low Speed GMLAN

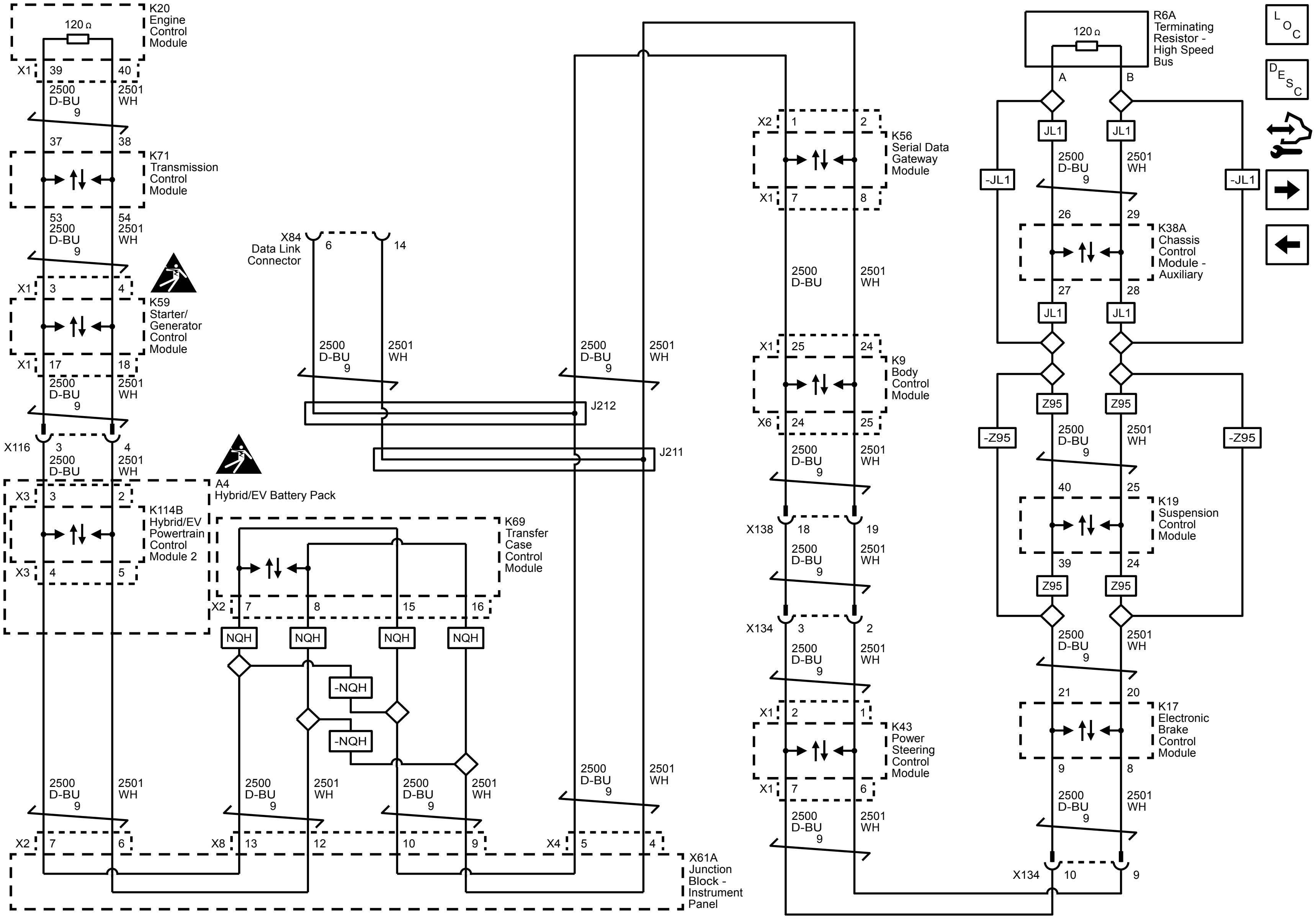

K56
Serial Data
Gateway
Module
X2
10
1102
GY/GN
J289
UQA/UQG
1102
GY/GN
1102
GY/GN
U42
3
X275
32
1102
GY/GN
1102
GY/GN
1102
GY/GN
1102
GY/GN
P16
Instrument
Cluster
1102
GY/GN
X1
4 (IOB)
X3
1
X1
14 (-IOB)
X1
3
X1
1
X1
11
T3
Audio
Amplifier
A11
Radio
P17
Info
Display
Module
K73
Telematics
Communication
Interface
Control Module
A33
Media Disc
Player

# High Speed GMLAN (1500 except E29 and HP5)

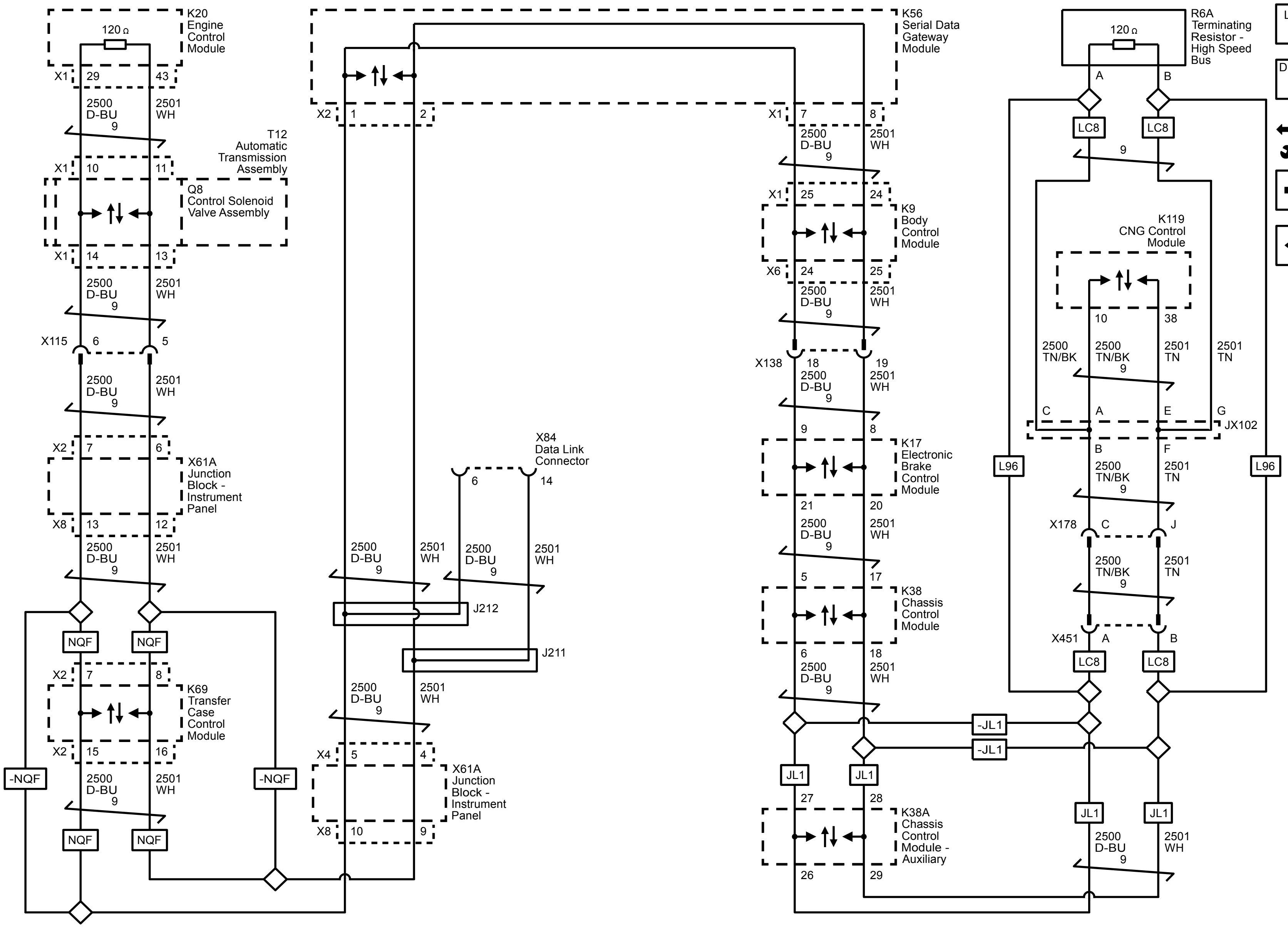


K20 Engine Control Module
120 Ω
X1 39 40
2500 D-BU 9
2501 WH
M5U
MYC
37 38
X1 10 11
K71 Transmission Control Module
53 54
Q8 Control Solenoid Valve Assembly
X1 14 13
T12 Automatic Transmission Assembly
X115 6 5
J212
J211
X2 7 6
X4 5 4
X61A Junction Block - Instrument Panel
X8 13 12 10 9
-NQH
NQH
X2 7 8 15 16
K69 Transfer Case Control Module
X84 Data Link Connector
6 14
X2 1 2
K56 Serial Data Gateway Module
X1 7 8
X1 25 24
K9 Body Control Module
X6 24 25
X138 18 19
X134 3 2
X1 2 1
K43 Power Steering Control Module
X1 7 6
R6A Terminating Resistor - High Speed Bus
A B
JL1
-JL1
26 29
K38A Chassis Control Module - Auxiliary
27 28
Z95
-Z95
40 25
K19 Suspension Control Module
39 24
21 20
K17 Electronic Brake Control Module
9 8
X134 10 9
LOC
DESC

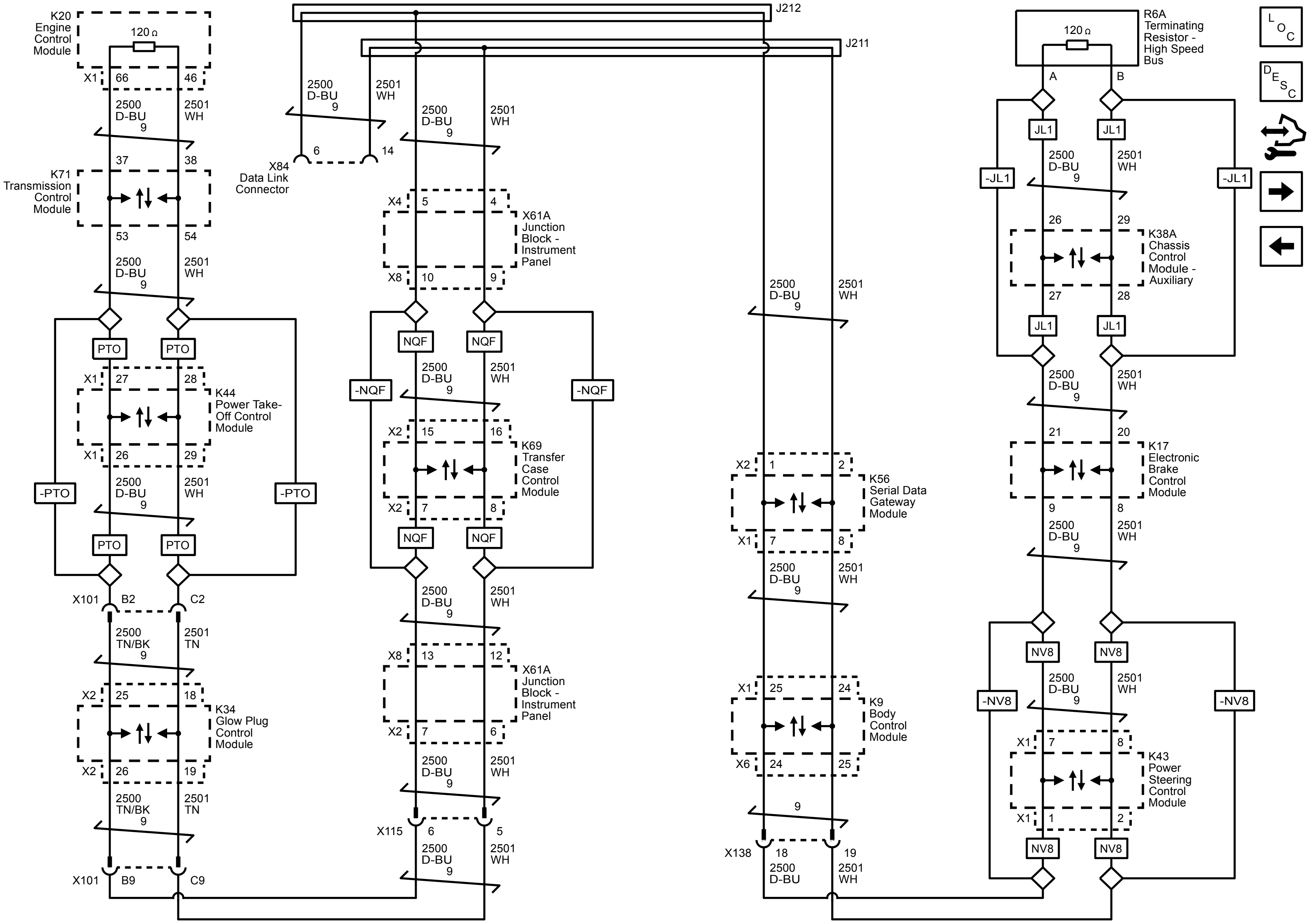
## High Speed GMLAN (1500 with HP5)


K20
Engine
Control
Module
120 Ω
X1
39
40
2500
D-BU
9
2501
WH
37
38
K71
Transmission
Control
Module
53
54
2500
D-BU
9
2501
WH
X1
3
4
K59
Starter/
Generator
Control
Module
X1
17
18
2500
D-BU
9
2501
WH
X116
3
4
2500
D-BU
2501
WH
A4
Hybrid/EV Battery Pack
X3
3
2
K114B
Hybrid/EV
Powertrain
Control
Module 2
X3
4
5
X84
Data Link
Connector
6
14
2500
D-BU
9
2501
WH
J212
J211
K69
Transfer
Case
Control
Module
X2
7
8
15
16
NQH
NQH
NQH
NQH
-NQH
-NQH
2500
D-BU
9
2501
WH
2500
D-BU
9
2501
WH
2500
D-BU
9
2501
WH
2500
D-BU
9
2501
WH
X2
7
6
X8
13
12
10
9
X4
5
4
X61A
Junction
Block -
Instrument
Panel
X2
1
2
K56
Serial Data
Gateway
Module
X1
7
8
2500
D-BU
2501
WH
X1
25
24
K9
Body
Control
Module
X6
24
25
2500
D-BU
9
2501
WH
X138
18
19
2500
D-BU
9
2501
WH
X134
3
2
2500
D-BU
9
2501
WH
X1
2
1
K43
Power
Steering
Control
Module
X1
7
6
2500
D-BU
9
2501
WH
R6A
Terminating
Resistor -
High Speed
Bus
120 Ω
A
B
JL1
JL1
-JL1
-JL1
2500
D-BU
9
2501
WH
26
29
K38A
Chassis
Control
Module -
Auxiliary
27
28
JL1
JL1
Z95
Z95
-Z95
-Z95
2500
D-BU
9
2501
WH
40
25
K19
Suspension
Control
Module
39
24
Z95
Z95
2500
D-BU
9
2501
WH
21
20
K17
Electronic
Brake
Control
Module
9
8
2500
D-BU
9
2501
WH
X134
10
9
LOC
DESC

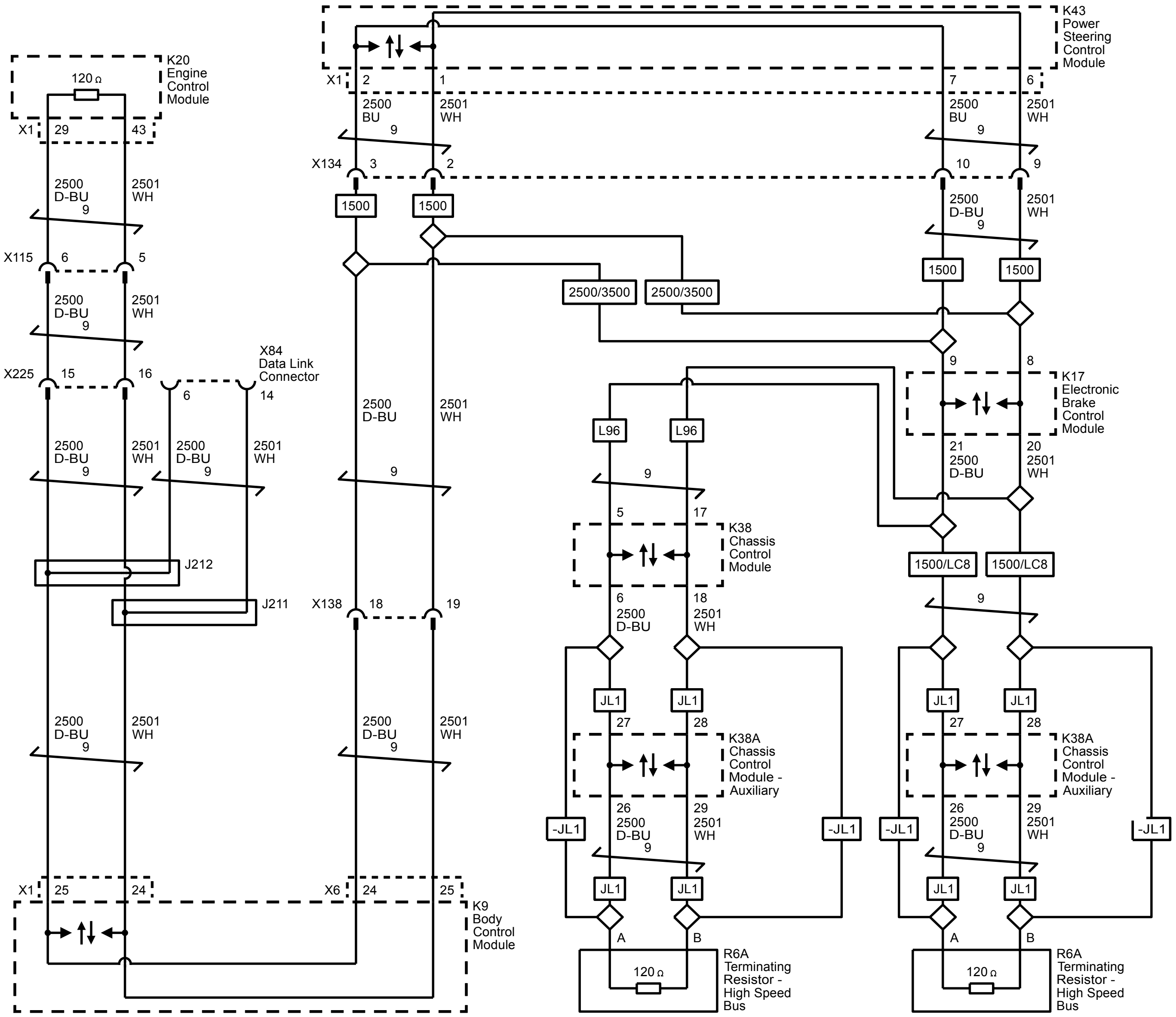
## High Speed GMLAN (2500/3500 except E29 or L5P)


K20
Engine
Control
Module
120 Ω
X1
29
43
2500
D-BU
9
2501
WH
T12
Automatic
Transmission
Assembly
X1
10
11
Q8
Control Solenoid
Valve Assembly
X1
14
13
2500
D-BU
9
2501
WH
X115
6
5
2500
D-BU
9
2501
WH
X2
7
6
X61A
Junction
Block -
Instrument
Panel
X8
13
12
2500
D-BU
9
2501
WH
NQF
NQF
K69
Transfer
Case
Control
Module
X2
7
8
X2
15
16
-NQF
-NQF
2500
D-BU
9
2501
WH
NQF
NQF
K56
Serial Data
Gateway
Module
X2
1
2
X84
Data Link
Connector
6
14
2500
D-BU
9
2501
WH
2500
D-BU
9
2501
WH
J212
J211
2500
D-BU
9
2501
WH
X4
5
4
X61A
Junction
Block -
Instrument
Panel
X8
10
9
X1
7
8
2500
D-BU
9
2501
WH
X1
25
24
K9
Body
Control
Module
X6
24
25
2500
D-BU
9
2501
WH
X138
18
19
2500
D-BU
9
2501
WH
9
8
K17
Electronic
Brake
Control
Module
21
20
2500
D-BU
9
2501
WH
5
17
K38
Chassis
Control
Module
6
18
2500
D-BU
9
2501
WH
-JL1
-JL1
JL1
JL1
27
28
K38A
Chassis
Control
Module -
Auxiliary
26
29
R6A
Terminating
Resistor -
High Speed
Bus
120 Ω
A
B
LC8
LC8
9
K119
CNG Control
Module
10
38
2500
TN/BK
2500
TN/BK
9
2501
TN
2501
TN
C
A
E
G
JX102
B
F
L96
L96
2500
TN/BK
9
2501
TN
X178
C
J
2500
TN/BK
9
2501
TN
X451
A
B
LC8
LC8
JL1
JL1
2500
D-BU
9
2501
WH

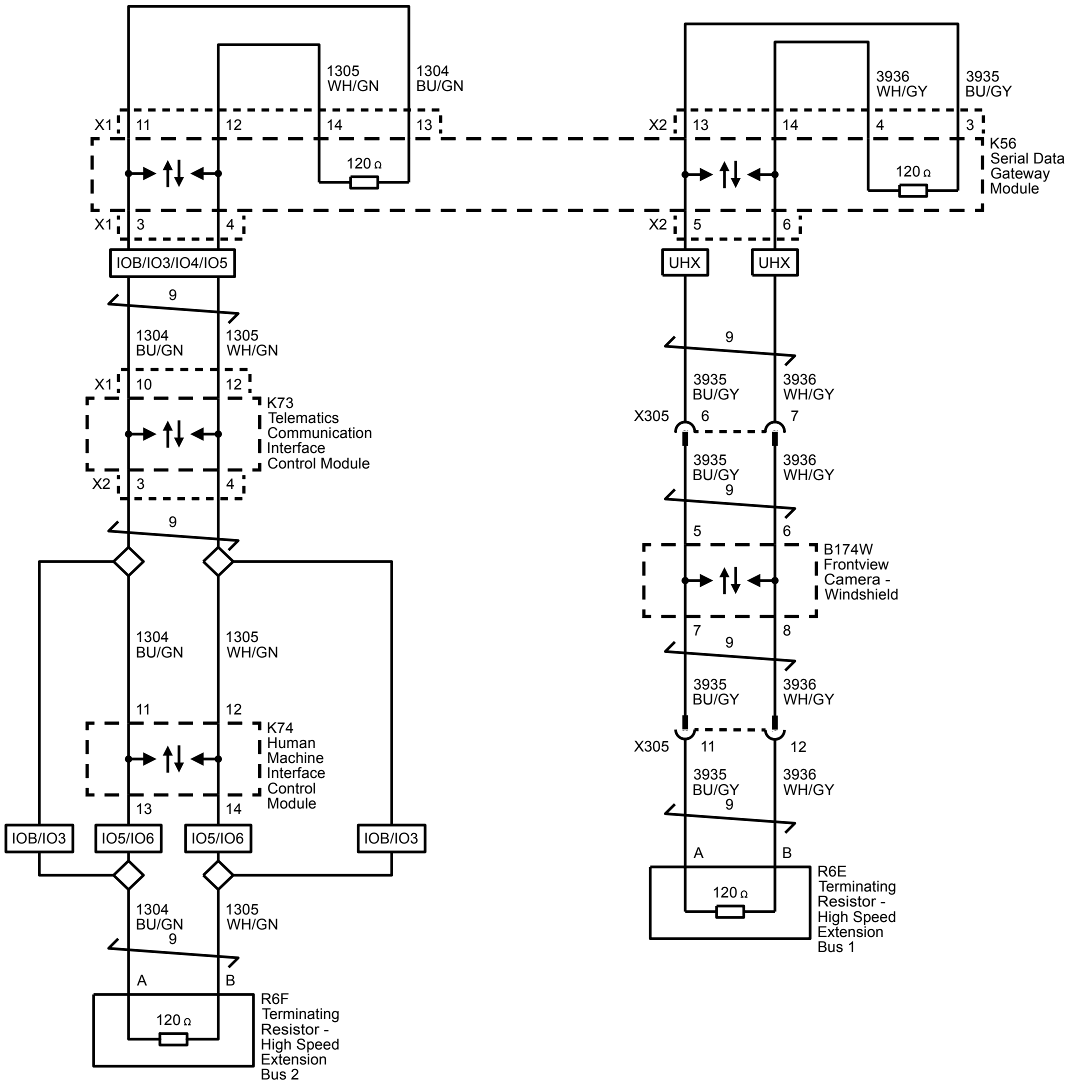
## High Speed GMLAN (L5P)


K20 Engine Control Module
120 Ω
X1 66 46
2500 D-BU 9
2501 WH
37 38
K71 Transmission Control Module
53 54
PTO
-PTO
X1 27 28
K44 Power Take-Off Control Module
X1 26 29
X101 B2 C2
2500 TN/BK 9
2501 TN
X2 25 18
K34 Glow Plug Control Module
X2 26 19
X101 B9 C9
J212
J211
2500 D-BU 9
2501 WH
X84 Data Link Connector
6 14
X4 5 4
X61A Junction Block - Instrument Panel
X8 10 9
NQF
-NQF
X2 15 16
K69 Transfer Case Control Module
X2 7 8
X8 13 12
X61A Junction Block - Instrument Panel
X2 7 6
X115 6 5
X2 1 2
K56 Serial Data Gateway Module
X1 7 8
X1 25 24
K9 Body Control Module
X6 24 25
9
X138 18 19
R6A Terminating Resistor - High Speed Bus
120 Ω
A B
JL1
-JL1
26 29
K38A Chassis Control Module - Auxiliary
27 28
21 20
K17 Electronic Brake Control Module
9 8
NV8
-NV8
X1 7 8
K43 Power Steering Control Module
X1 1 2
L O C
D E S C

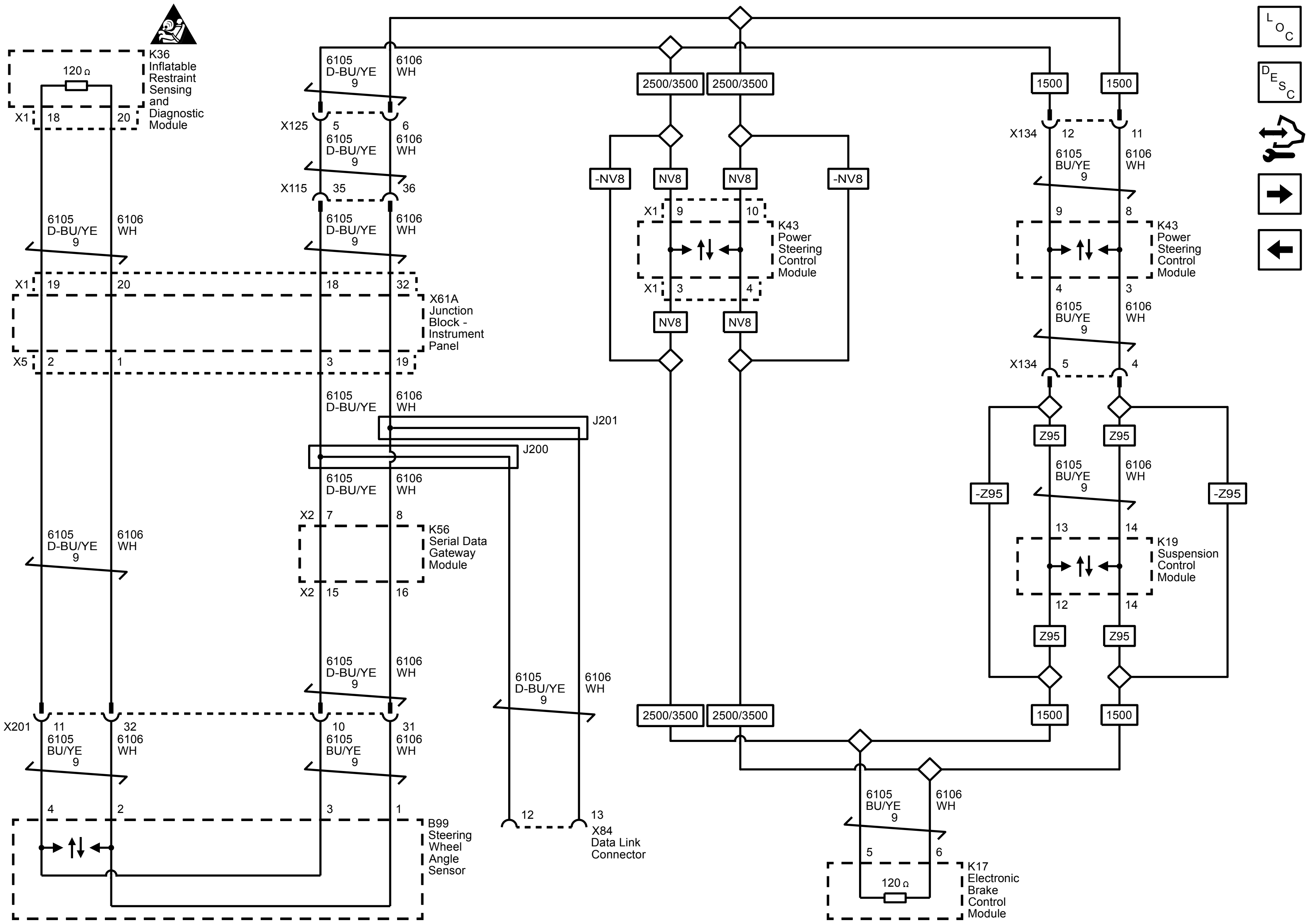
## High Speed GMLAN (E29)


K20
Engine
Control
Module
120 Ω
X1
29
43
2500
D-BU
9
2501
WH
X115
6
5
X225
15
16
X84
Data Link
Connector
6
14
J212
J211
X1
25
24
X6
24
25
K9
Body
Control
Module
K43
Power
Steering
Control
Module
X1
2
1
7
6
2500
BU
2501
WH
X134
3
2
10
9
1500
2500/3500
X138
18
19
K17
Electronic
Brake
Control
Module
9
8
21
20
L96
K38
Chassis
Control
Module
5
17
6
18
1500/LC8
JL1
-JL1
27
28
K38A
Chassis
Control
Module -
Auxiliary
26
29
A
B
R6A
Terminating
Resistor -
High Speed
Bus
120 Ω

# Gateway Expansion High Speed GMLAN

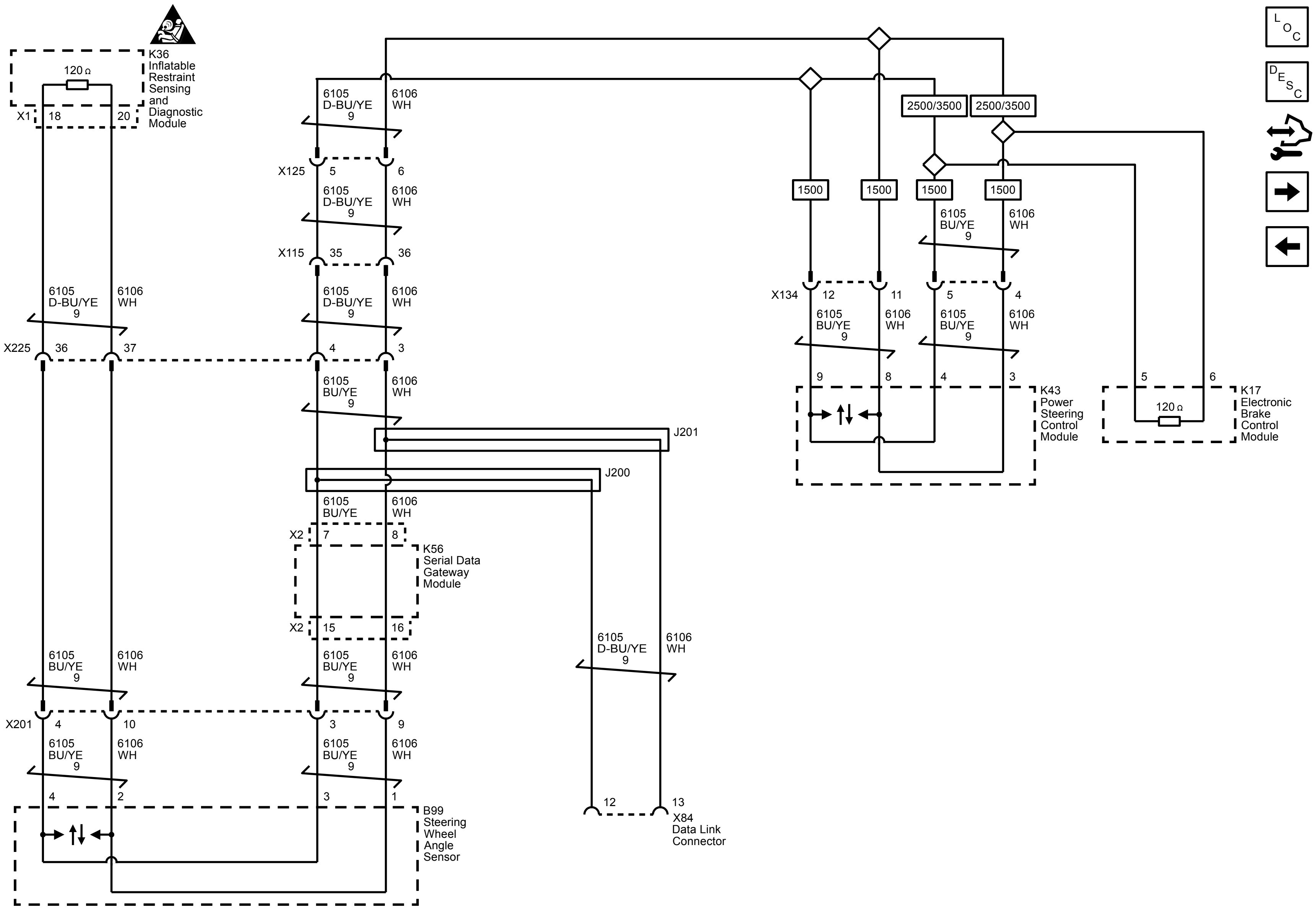

1305 WH/GN
1304 BU/GN
X1 11 12 14 13
120 Ω
X1 3 4
IOB/IO3/IO4/IO5
9
1304 BU/GN
1305 WH/GN
X1 10 12
K73 Telematics Communication Interface Control Module
X2 3 4
9
1304 BU/GN
1305 WH/GN
11 12
K74 Human Machine Interface Control Module
13 14
IOB/IO3
IO5/IO6
IO5/IO6
IOB/IO3
1304 BU/GN
1305 WH/GN
9
A B
120 Ω
R6F Terminating Resistor - High Speed Extension Bus 2
3936 WH/GY
3935 BU/GY
X2 13 14 4 3
K56 Serial Data Gateway Module
120 Ω
X2 5 6
UHX
UHX
9
3935 BU/GY
3936 WH/GY
X305 6 7
3935 BU/GY
3936 WH/GY
9
5 6
B174W Frontview Camera - Windshield
7 8
9
3935 BU/GY
3936 WH/GY
X305 11 12
3935 BU/GY
3936 WH/GY
9
A B
120 Ω
R6E Terminating Resistor - High Speed Extension Bus 1

## Chassis Expansion Bus (except E29)

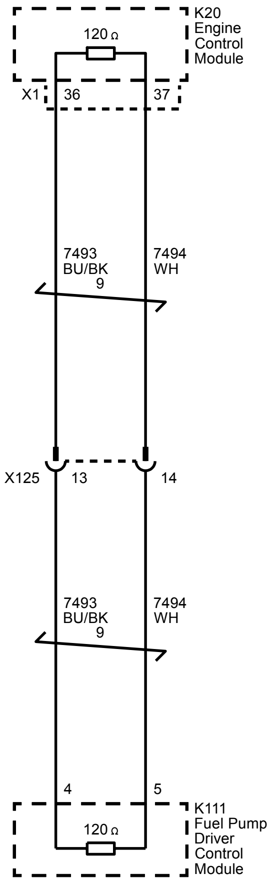


K36 Inflatable Restraint Sensing and Diagnostic Module
120 Ω
X1 18 20
6105 D-BU/YE 9
6106 WH
X1 19 20
X61A Junction Block - Instrument Panel
X5 2 1
X125 5 6
X115 35 36
18 32
3 19
J201
J200
X2 7 8
K56 Serial Data Gateway Module
X2 15 16
X201 11 32 10 31
6105 BU/YE 9
B99 Steering Wheel Angle Sensor
4 2 3 1
6105 D-BU/YE 9
6106 WH
12 13
X84 Data Link Connector
2500/3500
-NV8
NV8
X1 9 10
K43 Power Steering Control Module
X1 3 4
1500
X134 12 11
9 8
4 3
X134 5 4
Z95
-Z95
13 14
K19 Suspension Control Module
12 14
K17 Electronic Brake Control Module
5 6

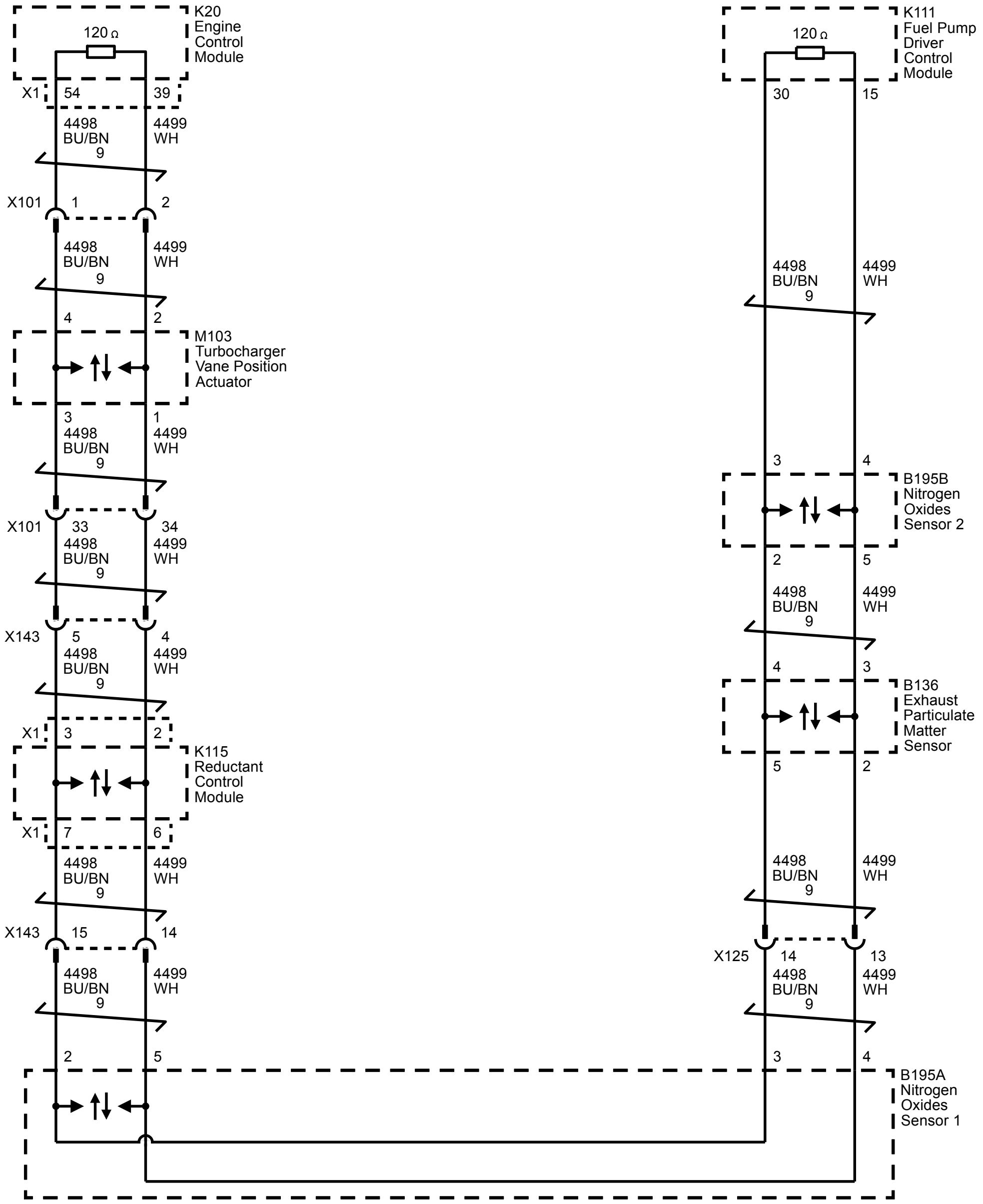
## Chassis Expansion Bus (E29)


K36 Inflatable Restraint Sensing and Diagnostic Module
120 Ω
X1
18
20
6105 D-BU/YE 9
6106 WH
X125
5
6
X115
35
36
X225
36
37
4
3
6105 BU/YE 9
J201
J200
X2
7
8
K56 Serial Data Gateway Module
15
16
X201
4
10
3
9
2
1
B99 Steering Wheel Angle Sensor
12
13
X84 Data Link Connector
2500/3500
1500
X134
12
11
5
4
9
8
3
K43 Power Steering Control Module
6
K17 Electronic Brake Control Module
LOC
DESC

# Powertrain Expansion Bus (1500)


K20
Engine
Control
Module
120 Ω
X1
36
37
7493
BU/BK
9
7494
WH
X125
13
14
7493
BU/BK
9
7494
WH
4
5
K111
Fuel Pump
Driver
Control
Module
120 Ω

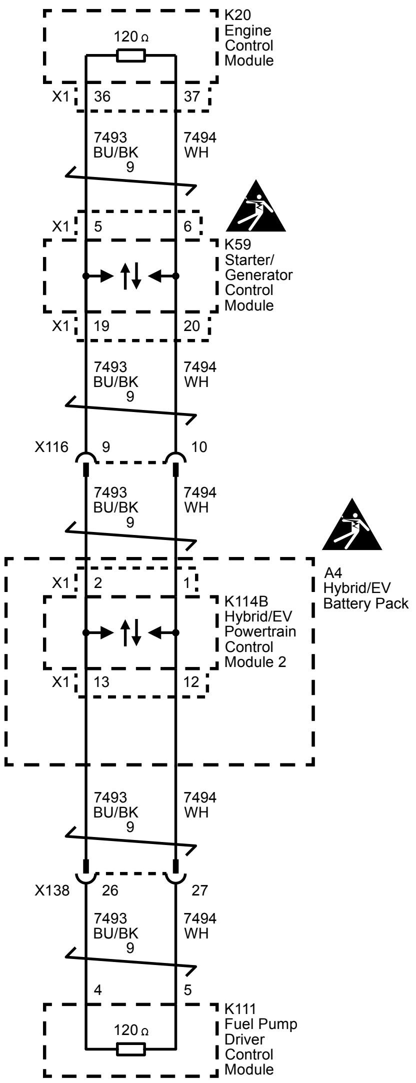
# Powertrain Expansion Bus (L5P)

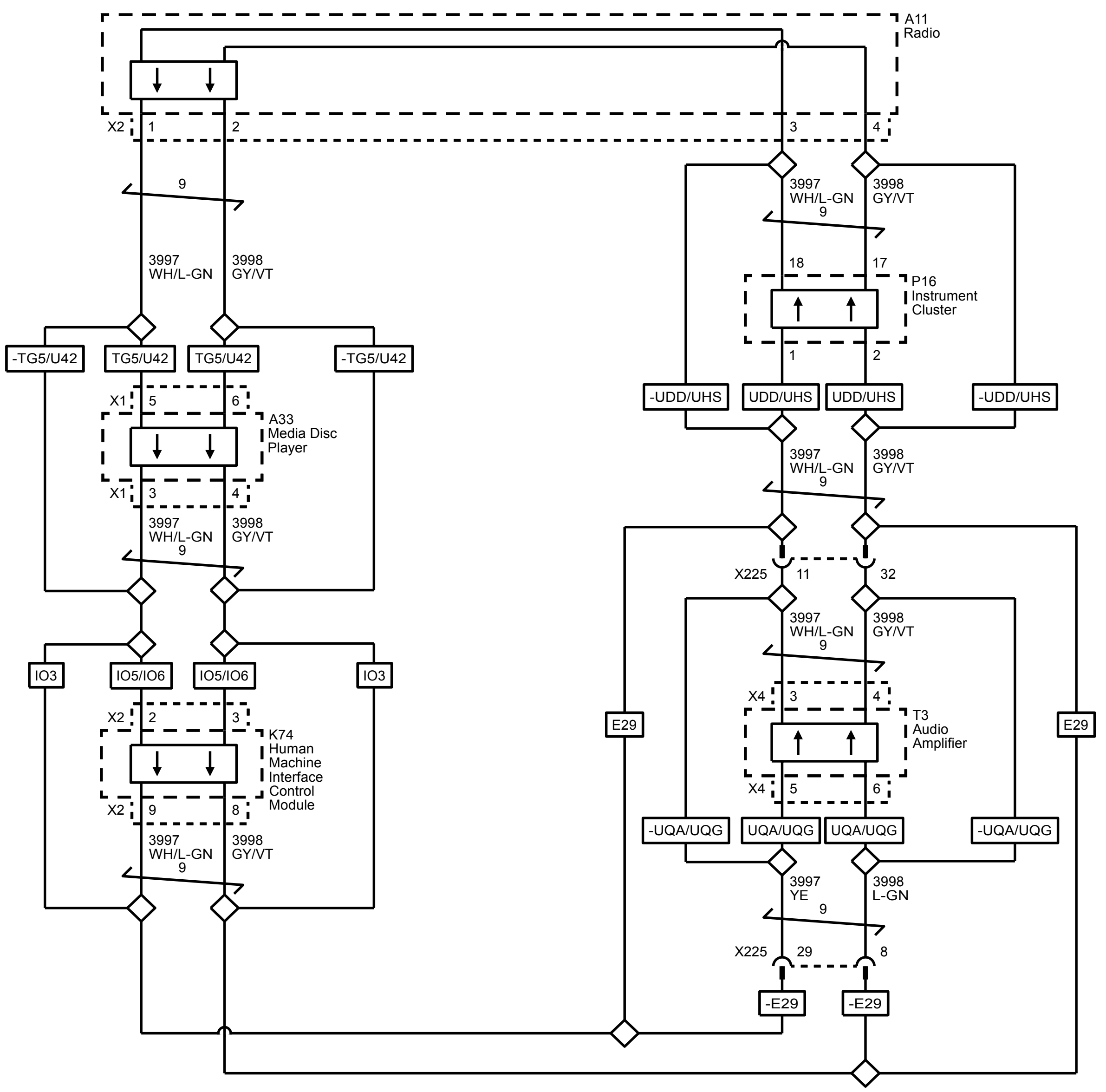


K20
Engine
Control
Module
120 Ω
X1
54
39
4498
BU/BN
9
4499
WH
X101
1
2
4498
BU/BN
9
4499
WH
4
2
M103
Turbocharger
Vane Position
Actuator
3
1
4498
BU/BN
9
4499
WH
X101
33
34
4498
BU/BN
9
4499
WH
X143
5
4
4498
BU/BN
9
4499
WH
X1
3
2
K115
Reductant
Control
Module
X1
7
6
4498
BU/BN
9
4499
WH
X143
15
14
4498
BU/BN
9
4499
WH
2
5
K111
Fuel Pump
Driver
Control
Module
120 Ω
30
15
4498
BU/BN
9
4499
WH
3
4
B195B
Nitrogen
Oxides
Sensor 2
2
5
4498
BU/BN
9
4499
WH
4
3
B136
Exhaust
Particulate
Matter
Sensor
5
2
4498
BU/BN
9
4499
WH
X125
14
13
4498
BU/BN
9
4499
WH
3
4
B195A
Nitrogen
Oxides
Sensor 1

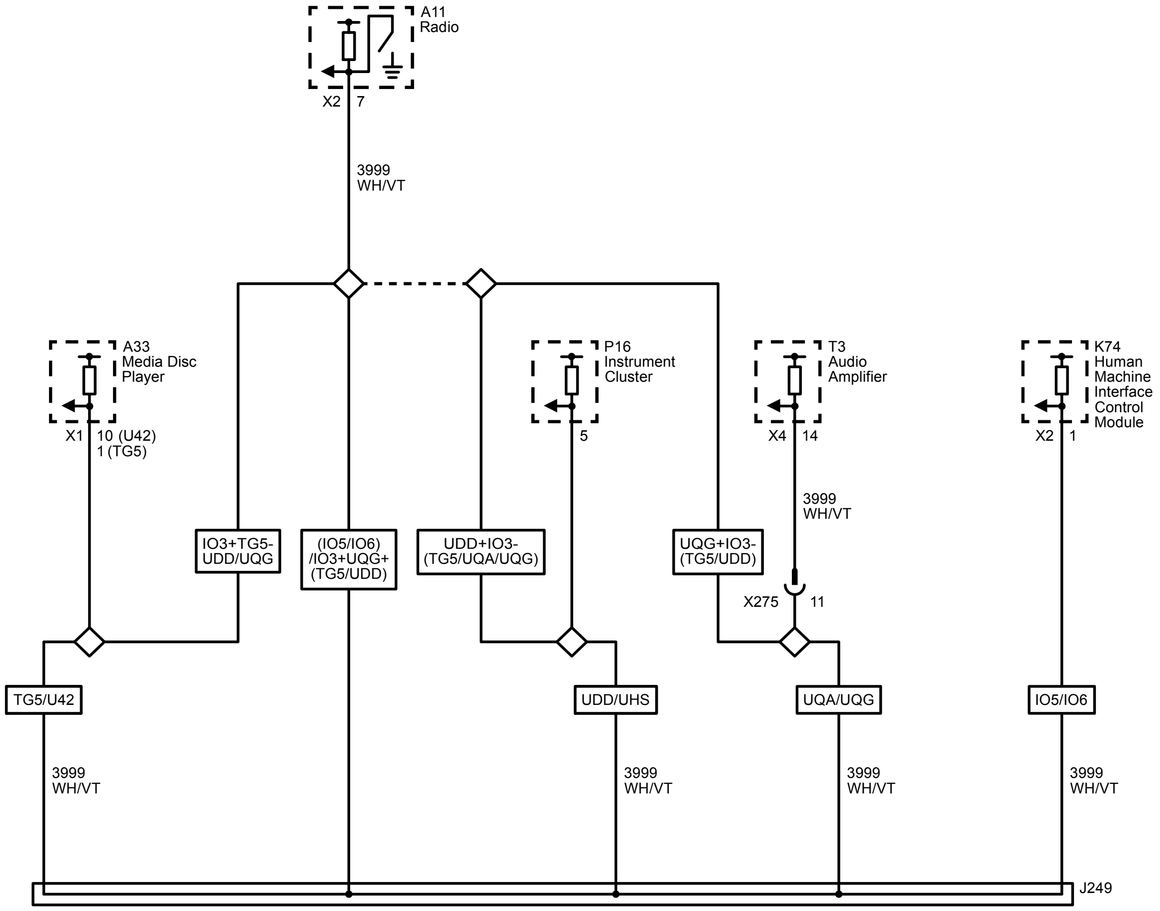
LOC
DESC

# Powertrain Expansion Bus (HP5)

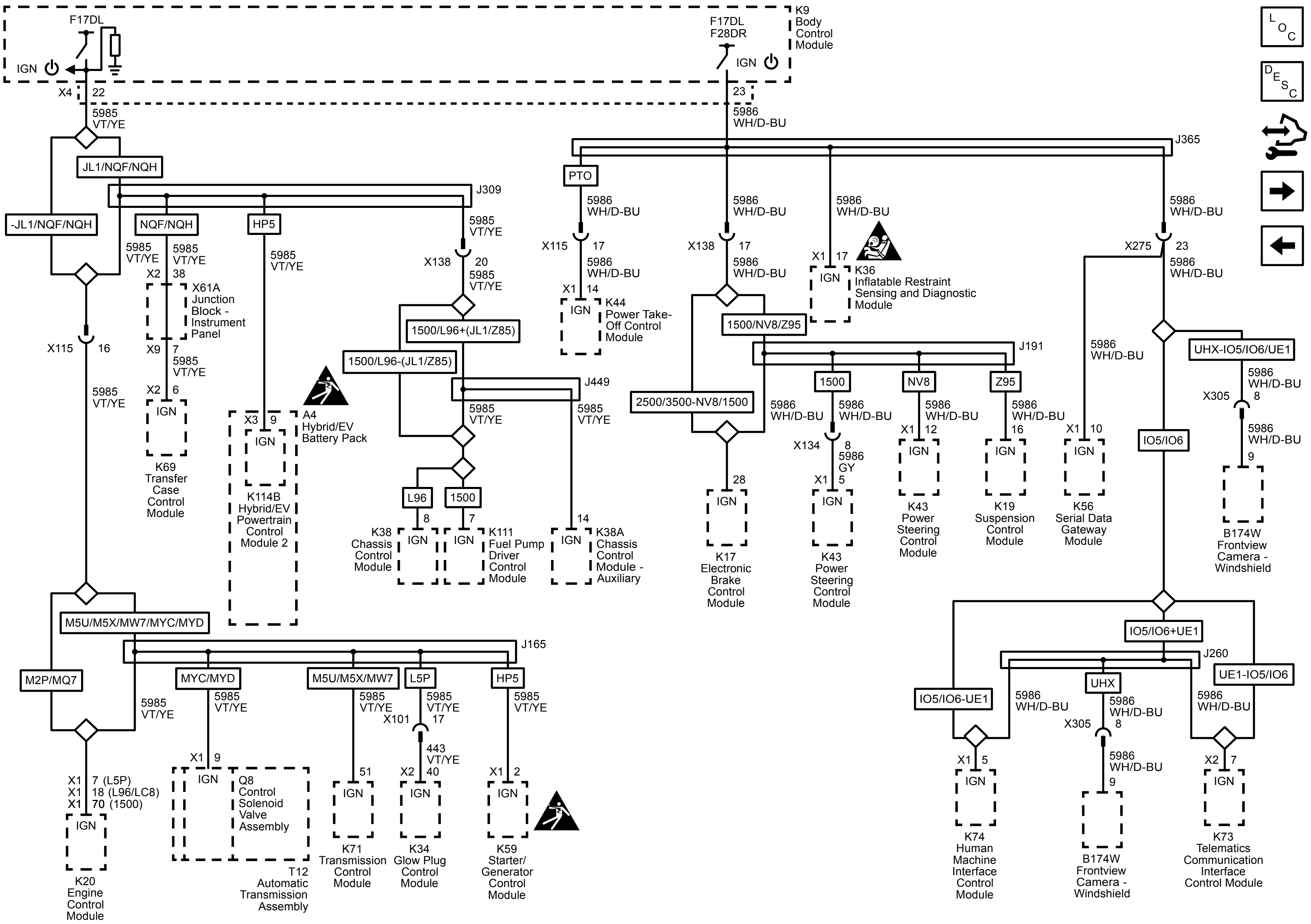

K20
Engine
Control
Module
120 Ω
X1
36
37
7493
BU/BK
9
7494
WH
X1
5
6
K59
Starter/
Generator
Control
Module
X1
19
20
7493
BU/BK
9
7494
WH
X116
9
10
7493
BU/BK
9
7494
WH
A4
Hybrid/EV
Battery Pack
X1
2
1
K114B
Hybrid/EV
Powertrain
Control
Module 2
X1
13
12
7493
BU/BK
9
7494
WH
X138
26
27
7493
BU/BK
9
7494
WH
4
5
K111
Fuel Pump
Driver
Control
Module
120 Ω

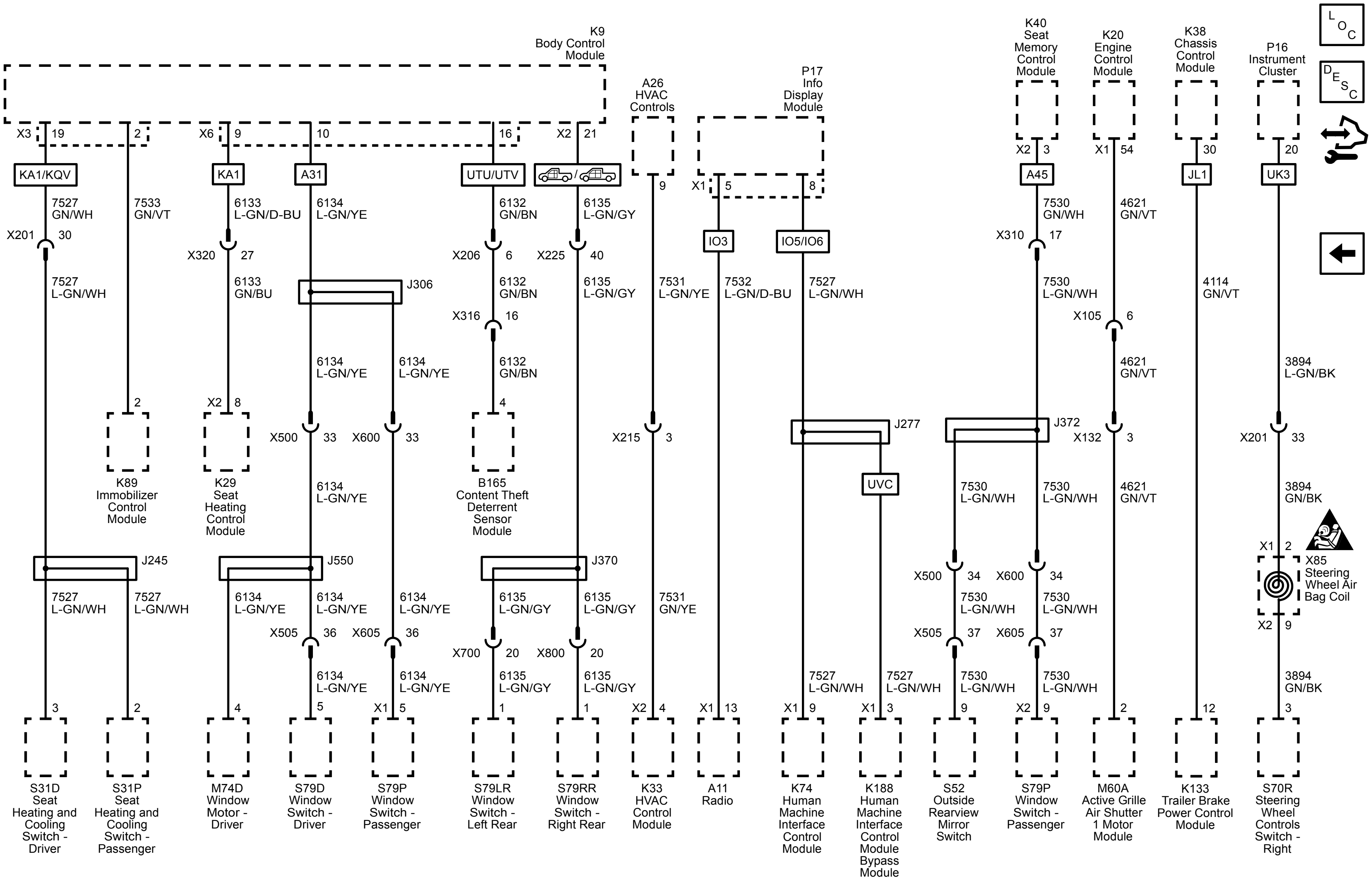

A11
Radio
X2
1
2
3
4
9
3997
WH/L-GN
3998
GY/VT
-TG5/U42
TG5/U42
TG5/U42
-TG5/U42
X1
5
6
A33
Media Disc
Player
X1
3
4
3997
WH/L-GN
9
3998
GY/VT
IO3
IO5/IO6
IO5/IO6
IO3
X2
2
3
K74
Human
Machine
Interface
Control
Module
X2
9
8
3997
WH/L-GN
9
3998
GY/VT
3997
WH/L-GN
9
3998
GY/VT
18
17
P16
Instrument
Cluster
1
2
-UDD/UHS
UDD/UHS
UDD/UHS
-UDD/UHS
3997
WH/L-GN
9
3998
GY/VT
X225
11
32
3997
WH/L-GN
9
3998
GY/VT
X4
3
4
T3
Audio
Amplifier
X4
5
6
E29
E29
-UQA/UQG
UQA/UQG
UQA/UQG
-UQA/UQG
3997
YE
9
3998
L-GN
X225
29
8
-E29
-E29

## MOST Communication Enable

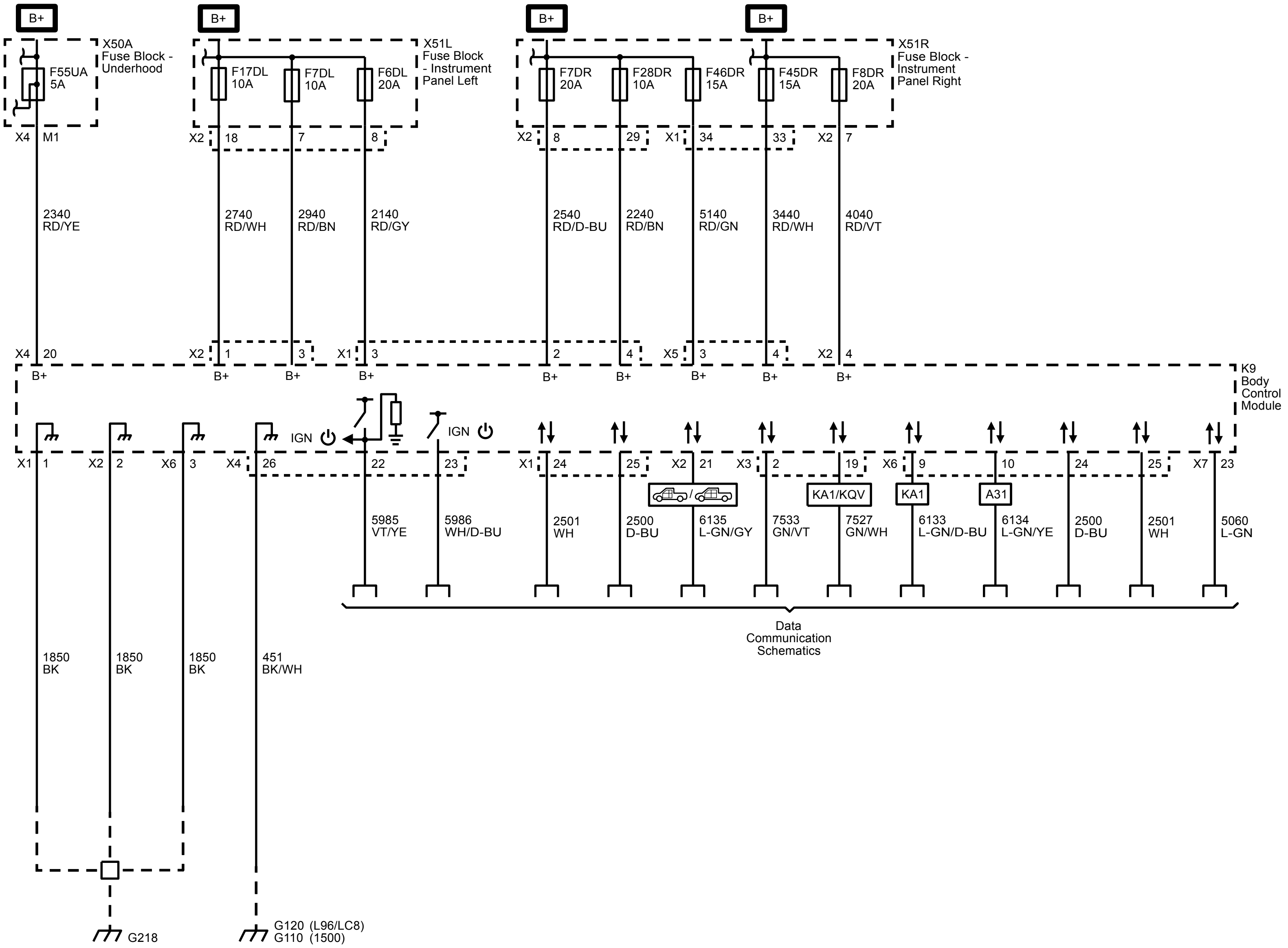

A11
Radio
X2
7
3999
WH/VT
A33
Media Disc
Player
X1
10 (U42)
1 (TG5)
P16
Instrument
Cluster
5
T3
Audio
Amplifier
X4
14
3999
WH/VT
K74
Human
Machine
Interface
Control
Module
X2
1
IO3+TG5-
UDD/UQG
(IO5/IO6)
/IO3+UQG+
(TG5/UDD)
UDD+IO3-
(TG5/UQA/UQG)
UQG+IO3-
(TG5/UDD)
X275
11
TG5/U42
UDD/UHS
UQA/UQG
IO5/IO6
3999
WH/VT
3999
WH/VT
3999
WH/VT
3999
WH/VT
J249

## Accessory Wakeup and Communications Enable

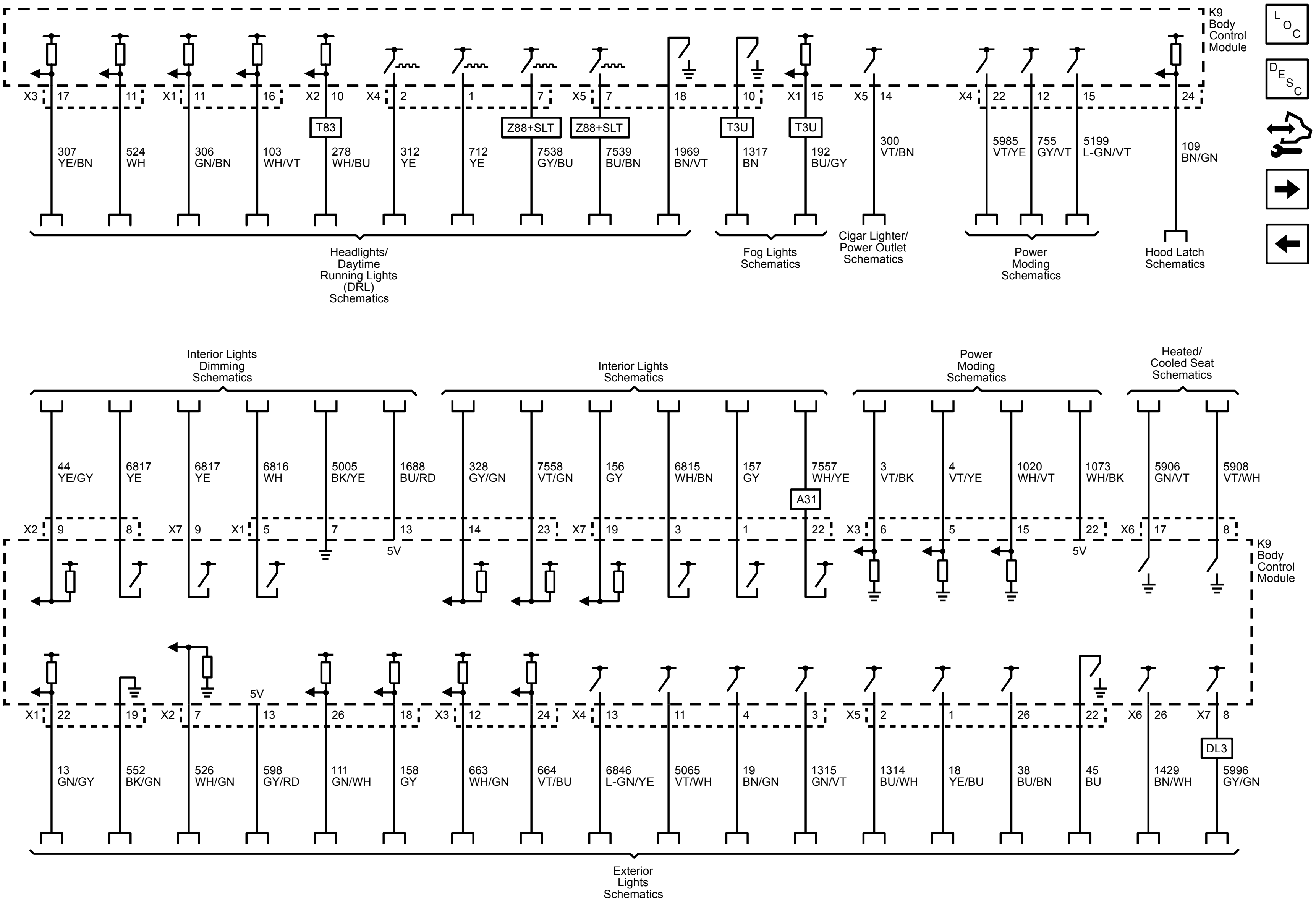

F17DL
IGN
K9
Body
Control
Module
F17DL
F28DR
IGN
X4
22
5985
VT/YE
23
5986
WH/D-BU
J365
JL1/NQF/NQH
J309
-JL1/NQF/NQH
NQF/NQH
HP5
5985
VT/YE
X2
38
X61A
Junction
Block -
Instrument
Panel
X9
7
X2
6
IGN
K69
Transfer
Case
Control
Module
X138
20
1500/L96+(JL1/Z85)
1500/L96-(JL1/Z85)
J449
X3
9
A4
Hybrid/EV
Battery Pack
K114B
Hybrid/EV
Powertrain
Control
Module 2
L96
1500
8
7
14
K38
Chassis
Control
Module
K111
Fuel Pump
Driver
Control
Module
K38A
Chassis
Control
Module -
Auxiliary
X115
16
PTO
X115
17
X1
14
K44
Power Take-
Off Control
Module
X138
17
X1
17
K36
Inflatable Restraint
Sensing and Diagnostic
Module
1500/NV8/Z95
J191
2500/3500-NV8/1500
1500
NV8
Z95
X134
8
5986
GY
X1
5
X1
12
16
X1
10
28
K17
Electronic
Brake
Control
Module
K43
Power
Steering
Control
Module
K43
Power
Steering
Control
Module
K19
Suspension
Control
Module
K56
Serial Data
Gateway
Module
X275
23
UHX-IO5/IO6/UE1
X305
8
9
IO5/IO6
B174W
Frontview
Camera -
Windshield
IO5/IO6+UE1
J260
IO5/IO6-UE1
UHX
UE1-IO5/IO6
X305
8
9
X1
5
X2
7
K74
Human
Machine
Interface
Control
Module
B174W
Frontview
Camera -
Windshield
K73
Telematics
Communication
Interface
Control Module
M5U/M5X/MW7/MYC/MYD
J165
M2P/MQ7
MYC/MYD
M5U/M5X/MW7
L5P
HP5
X101
17
443
VT/YE
X1
9
51
X2
40
X1
2
X1 7 (L5P)
X1 18 (L96/LC8)
X1 70 (1500)
K20
Engine
Control
Module
Q8
Control
Solenoid
Valve
Assembly
T12
Automatic
Transmission
Assembly
K71
Transmission
Control
Module
K34
Glow Plug
Control
Module
K59
Starter/
Generator
Control
Module


K9
Body Control
Module
X3 19
2
X6 9
10
16
X2 21
KA1/KQV
KA1
A31
UTU/UTV
7527
GN/WH
7533
GN/VT
6133
L-GN/D-BU
6134
L-GN/YE
6132
GN/BN
6135
L-GN/GY
X201 30
X320 27
X206 6
X225 40
7527
L-GN/WH
6133
GN/BU
J306
6132
GN/BN
6135
L-GN/GY
X316 16
6134
L-GN/YE
6134
L-GN/YE
6132
GN/BN
2
X2 8
4
X500 33
X600 33
K89
Immobilizer
Control
Module
K29
Seat
Heating
Control
Module
6134
L-GN/YE
B165
Content Theft
Deterrent
Sensor
Module
J245
J550
J370
7527
L-GN/WH
7527
L-GN/WH
6134
L-GN/YE
6134
L-GN/YE
6134
L-GN/YE
6135
L-GN/GY
6135
L-GN/GY
X505 36
X605 36
X700 20
X800 20
6134
L-GN/YE
6134
L-GN/YE
6135
L-GN/GY
6135
L-GN/GY
3
2
4
5
X1 5
1
1
S31D
Seat
Heating and
Cooling
Switch -
Driver
S31P
Seat
Heating and
Cooling
Switch -
Passenger
M74D
Window
Motor -
Driver
S79D
Window
Switch -
Driver
S79P
Window
Switch -
Passenger
S79LR
Window
Switch -
Left Rear
S79RR
Window
Switch -
Right Rear
A26
HVAC
Controls
9
X215 3
7531
L-GN/YE
7531
GN/YE
X2 4
K33
HVAC
Control
Module
P17
Info
Display
Module
X1 5
8
IO3
IO5/IO6
7532
L-GN/D-BU
7527
L-GN/WH
X1 13
A11
Radio
J277
UVC
7527
L-GN/WH
7527
L-GN/WH
X1 9
X1 3
K74
Human
Machine
Interface
Control
Module
K188
Human
Machine
Interface
Control
Module
Bypass
Module
K40
Seat
Memory
Control
Module
X2 3
A45
7530
GN/WH
X310 17
7530
L-GN/WH
J372
7530
L-GN/WH
7530
L-GN/WH
X500 34
X600 34
7530
L-GN/WH
7530
L-GN/WH
X505 37
X605 37
7530
L-GN/WH
7530
L-GN/WH
9
X2 9
S52
Outside
Rearview
Mirror
Switch
S79P
Window
Switch -
Passenger
K20
Engine
Control
Module
X1 54
4621
GN/VT
X105 6
4621
GN/VT
X132 3
4621
GN/VT
2
M60A
Active Grille
Air Shutter
1 Motor
Module
K38
Chassis
Control
Module
30
JL1
4114
GN/VT
12
K133
Trailer Brake
Power Control
Module
P16
Instrument
Cluster
20
UK3
3894
L-GN/BK
X201 33
3894
GN/BK
X1 2
X85
Steering
Wheel Air
Bag Coil
X2 9
3894
GN/BK
3
S70R
Steering
Wheel
Controls
Switch -
Right
L O C
D E S C

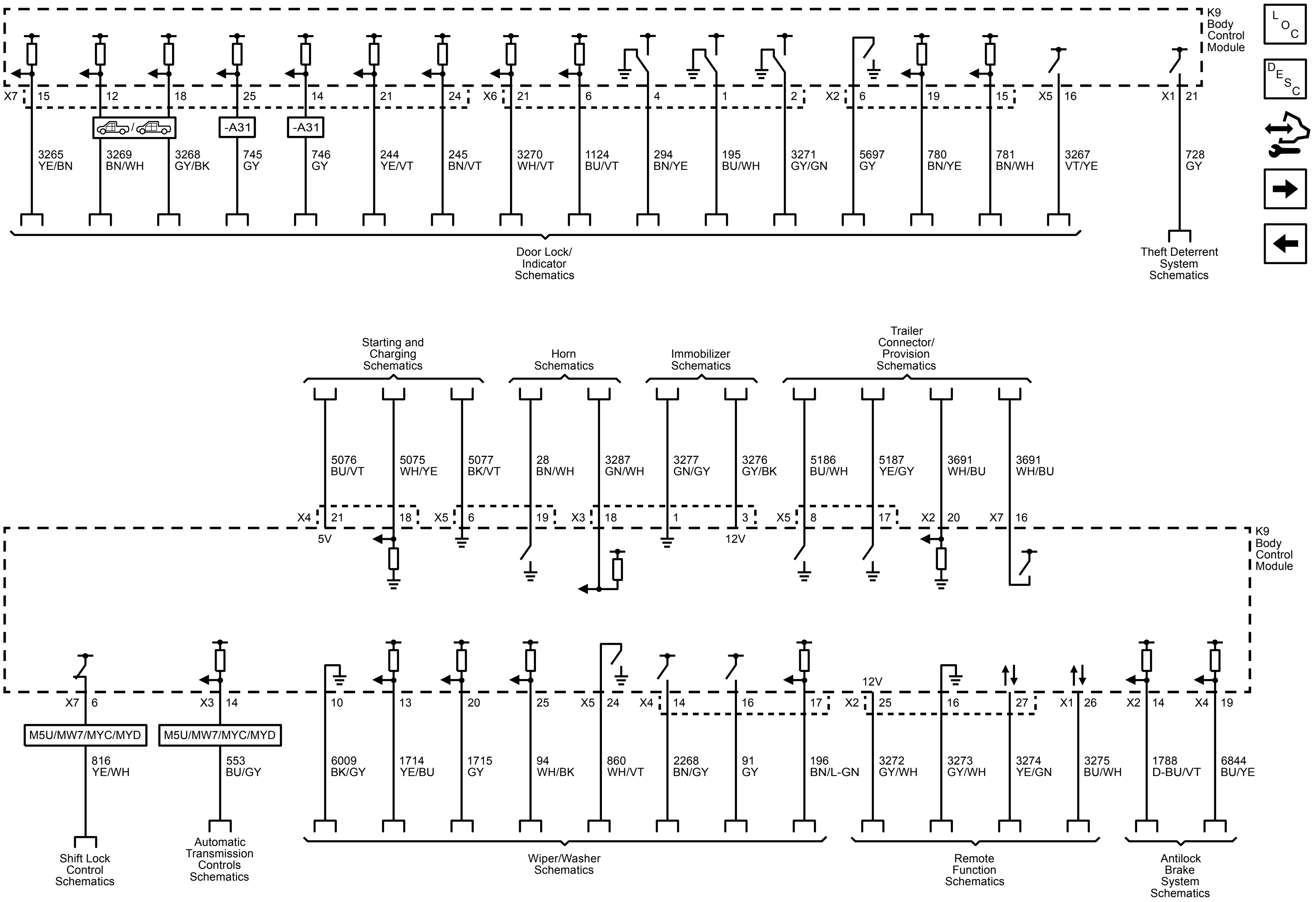
## Module Power, Ground and Serial Data


B+
X50A
Fuse Block - Underhood
F55UA 5A
X4 M1
2340 RD/YE
B+
X51L
Fuse Block - Instrument Panel Left
F17DL 10A
F7DL 10A
F6DL 20A
X2 18 7 8
2740 RD/WH
2940 RD/BN
2140 RD/GY
B+
B+
X51R
Fuse Block - Instrument Panel Right
F7DR 20A
F28DR 10A
F46DR 15A
F45DR 15A
F8DR 20A
X2 8 29 X1 34 33 X2 7
2540 RD/D-BU
2240 RD/BN
5140 RD/GN
3440 RD/WH
4040 RD/VT
X4 20
X2 1 3
X1 3
2 4
X5 3 4
X2 4
B+
K9
Body Control Module
IGN
IGN
X1 1
X2 2
X6 3
X4 26
22
23
X1 24
25
X2 21
X3 2
19
X6 9
10
24
25
X7 23
KA1/KQV
KA1
A31
5985 VT/YE
5986 WH/D-BU
2501 WH
2500 D-BU
6135 L-GN/GY
7533 GN/VT
7527 GN/WH
6133 L-GN/D-BU
6134 L-GN/YE
2500 D-BU
2501 WH
5060 L-GN
Data Communication Schematics
1850 BK
1850 BK
1850 BK
451 BK/WH
G218
G120 (L96/LC8)
G110 (1500)

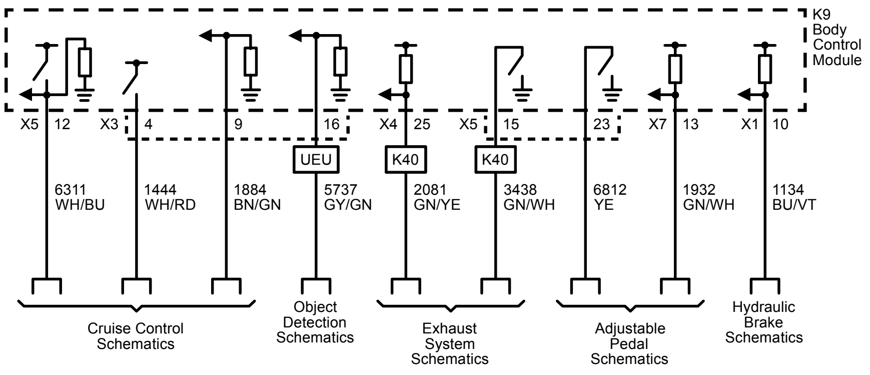
## Subsystem References (1 of 3)


K9
Body
Control
Module
X3 17
11
X1 11
16
X2 10
X4 2
1
7
X5 7
18
10
X1 15
X5 14
X4 22
12
15
24
T83
Z88+SLT
Z88+SLT
T3U
T3U
307
YE/BN
524
WH
306
GN/BN
103
WH/VT
278
WH/BU
312
YE
712
YE
7538
GY/BU
7539
BU/BN
1969
BN/VT
1317
BN
192
BU/GY
300
VT/BN
5985
VT/YE
755
GY/VT
5199
L-GN/VT
109
BN/GN
Headlights/
Daytime
Running Lights
(DRL)
Schematics
Fog Lights
Schematics
Cigar Lighter/
Power Outlet
Schematics
Power
Moding
Schematics
Hood Latch
Schematics
Interior Lights
Dimming
Schematics
Interior Lights
Schematics
Power
Moding
Schematics
Heated/
Cooled Seat
Schematics
44
YE/GY
6817
YE
6817
YE
6816
WH
5005
BK/YE
1688
BU/RD
328
GY/GN
7558
VT/GN
156
GY
6815
WH/BN
157
GY
7557
WH/YE
A31
3
VT/BK
4
VT/YE
1020
WH/VT
1073
WH/BK
5906
GN/VT
5908
VT/WH
X2 9
8
X7 9
X1 5
7
13
5V
14
23
X7 19
3
1
22
X3 6
5
15
22
5V
X6 17
8
K9
Body
Control
Module
5V
X1 22
19
X2 7
13
26
18
X3 12
24
X4 13
11
4
3
X5 2
1
26
22
X6 26
X7 8
DL3
13
GN/GY
552
BK/GN
526
WH/GN
598
GY/RD
111
GN/WH
158
GY
663
WH/GN
664
VT/BU
6846
L-GN/YE
5065
VT/WH
19
BN/GN
1315
GN/VT
1314
BU/WH
18
YE/BU
38
BU/BN
45
BU
1429
BN/WH
5996
GY/GN
Exterior
Lights
Schematics
L O C
D E S C

## Subsystem References (2 of 3)


K9 Body Control Module
X7 15
12
18
25
14
21
24
X6 21
6
4
1
2
X2 6
19
15
X5 16
X1 21
-A31
-A31
3265 YE/BN
3269 BN/WH
3268 GY/BK
745 GY
746 GY
244 YE/VT
245 BN/VT
3270 WH/VT
1124 BU/VT
294 BN/YE
195 BU/WH
3271 GY/GN
5697 GY
780 BN/YE
781 BN/WH
3267 VT/YE
728 GY
Door Lock/ Indicator Schematics
Theft Deterrent System Schematics
L O C
D E S C
Starting and Charging Schematics
Horn Schematics
Immobilizer Schematics
Trailer Connector/ Provision Schematics
5076 BU/VT
5075 WH/YE
5077 BK/VT
28 BN/WH
3287 GN/WH
3277 GN/GY
3276 GY/BK
5186 BU/WH
5187 YE/GY
3691 WH/BU
3691 WH/BU
X4 21
18
X5 6
19
X3 18
1
3
X5 8
17
X2 20
X7 16
5V
12V
K9 Body Control Module
X7 6
X3 14
10
13
20
25
X5 24
X4 14
16
17
12V
X2 25
16
27
X1 26
X2 14
X4 19
M5U/MW7/MYC/MYD
M5U/MW7/MYC/MYD
816 YE/WH
553 BU/GY
6009 BK/GY
1714 YE/BU
1715 GY
94 WH/BK
860 WH/VT
2268 BN/GY
91 GY
196 BN/L-GN
3272 GY/WH
3273 GY/WH
3274 YE/GN
3275 BU/WH
1788 D-BU/VT
6844 BU/YE
Shift Lock Control Schematics
Automatic Transmission Controls Schematics
Wiper/Washer Schematics
Remote Function Schematics
Antilock Brake System Schematics

## Subsystem References (3 of 3)


K9
Body
Control
Module
X5
12
X3
4
9
16
X4
25
X5
15
23
X7
13
X1
10
UEU
K40
K40
6311
WH/BU
1444
WH/RD
1884
BN/GN
5737
GY/GN
2081
GN/YE
3438
GN/WH
6812
YE
1932
GN/WH
1134
BU/VT
Cruise Control
Schematics
Object
Detection
Schematics
Exhaust
System
Schematics
Adjustable
Pedal
Schematics
Hydraulic
Brake
Schematics

# Description and Operation

## Body Control System Description and Operation

The body control system consists of the body control module (BCM), communications, and various input and outputs. Some inputs, outputs and messages require other modules to interact with the BCM. The BCM also has discrete input and output terminals to control the vehicle's body functions. The BCM is wired to the high speed GMLAN serial data bus, low speed GMLAN serial data bus and Multiple LIN buses and acts as a gateway between them.

### Power Mode Master

This vehicle body control module (BCM) functions as the power mode master (PMM). The ignition switch is a low current switch with multiple discrete ignition switch signals to the PMM for determining the power mode that will be sent over the serial data circuits to the other modules that need this information; the PMM will activate relays and other direct outputs of the PMM as needed. Refer to Power Mode Description and Operation for a complete description of power mode functions.

### Gateway

The body control module (BCM) in this vehicle functions as a gateway or translator. The purpose of the gateway is to translate serial data messages between the GMLAN high speed bus and the GMLAN low speed bus for communication between the various modules. The gateway will interact with each network according to that network's transmission protocol.

All communication between the BCM and a scan tool is on the high speed GMLAN serial data circuits. A lost communication DTC typically is set in modules other than the module with a communication failure.

### Body Control

The various body control module (BCM) input and output circuits are illustrated in the corresponding functional areas on the BCM electrical schematics. Refer to the Body Control System Schematics for more detailed information.

## Data Link Communications Description and Operation

**Note:** This is an overview of different serial data buses used by GM devices to communicate with each others. Use Data Communication Schematics to find out which serial data buses are configured for a specific vehicle.

### Circuit Description

There are many components in a vehicle that rely on information from other sources, transmit information to other sources, or both. Serial data communication networks provide a reliable, cost effective, way for various components of the vehicle to “talk” to one another and share information.

GM uses a number of different communication buses to insure the timely and efficient exchange of information between devices. When compared to each other, some of these buses are different in nature as far as speed, signal characteristics, and behavior. An example of this is the High Speed GMLAN and Low Speed GMLAN buses.

On the other hand, when other buses are compared to each other they have similar characteristics and simply operate in parallel. In this case they are used to group together components which have high interaction. Examples are the High Speed GMLAN, Powertrain Expansion, and Chassis Expansion buses. This allows them to communicate with each other on a bus with reduced message congestion insuring faster and the more timely exchange of information than if all vehicle devices were on a single bus.

The majority of information that exists within a given network generally stays local; however some information will have to be shared on other networks. Control modules designated as Gateway’s perform the function of transferring information between the various buses. A Gateway module is connected to at least 2 buses and will interact with each network according to its message strategy and transmission models.

GMLAN provides the capability for a receiving device to monitor message transmissions from other devices in order to determine if messages of interest are not being received. The primary purpose is to allow reasonable default values to be substituted for the information no longer being received. Additionally, a device may set a Diagnostic Trouble Code to indicate that the device it is expecting information from is no longer communicating.

### High Speed GMLAN Circuit Description

A High Speed GMLAN Bus is used where data needs to be exchanged at a high enough rate to minimize the delay between the occurrence of a change in sensor value and the reception of this information by a control device using the information to adjust vehicle system performance.

The High Speed GMLAN serial data network consists of two twisted wires. One signal circuit is identified as GMLAN-High and the other signal circuit is identified as GMLAN-Low. At each end of the data bus there is a 120 Ω termination resistor between the GMLAN-High and GMLAN-Low circuits.

Data symbols (1’s and 0’s) are transmitted sequentially at a rate of 500 Kbit/s. The data to be transmitted over the bus is represented by the voltage difference between the GMLAN-High signal voltage and the GMLAN-Low signal voltage.

When the two wire bus is at rest the GMLAN-High and GMLAN-Low signal circuits are not being driven and this represents a logic “1”. In this state both signal circuits are at the same voltage of 2.5 V. The differential voltage is approximately 0 V.

When a logic “0” is to be transmitted, the GMLAN-High signal circuit is driven higher to about 3.5 V and the GMLAN-Low circuit is driven lower to about 1.5 V. The differential voltage becomes approximately 2.0 (+/- 0.5) V.

### Chassis High Speed GMLAN Circuit Description

The GMLAN Chassis Expansion Bus is basically a copy of the High Speed GMLAN Bus except that its use is reserved for chassis components. This implementation splits message congestion between two parallel buses helping to insure timely message transmission and reception. Sometimes communication is required between the Chassis Expansion Bus and the primary High Speed GMLAN Bus. This is accomplished by using the K17 Electronic Brake Control Module (EBCM) as the Gateway module. Since the High Speed GMLAN Chassis Expansion Bus and primary High Speed GMLAN Bus operate in the same manner, the diagnostics for each are similar.

### Powertrain High Speed GMLAN Circuit Description

The GMLAN Powertrain Expansion Bus is basically a copy of the High Speed GMLAN Bus except that its use is reserved for Powertrain components. The bus is optional based upon feature content. Sometimes communication is required between the Powertrain Expansion Bus and the primary High Speed GMLAN Bus. This is accomplished by using the K20 Engine Control Module (ECM) as the Gateway module. Since the High Speed GMLAN Powertrain Expansion Bus and the primary High Speed GMLAN Bus operate in the same manner, the diagnostics for each are similar.

### Media Oriented Systems Transport (MOST) Circuit Description

The MOST Infotainment network is a dedicated high speed multimedia streaming data bus independent from GMLAN. The MOST bus will be configured in a physical hardwired loop with each device within the bus sends and receives data on an assigned MOST addresses in a set order. Each device on the MOST bus will be required to have twisted pair copper wires (2 transmit TX, 2 receive RX, and 1 electronic control line which is a 12 V wakeup signal line). The A11 Radio is the MOST Master and will monitor the bus for vehicle configuration, Infotainment data messages and errors on the bus. The MOST initialization consists of a short 100 ms low voltage pulse on the electronic control line (or MOST control line) connected to all devices contained on the MOST ring. This wakeup message once received by each device, will first respond with a generic device response. Once these initial responses on the MOST bus are reported successfully without error to the A11 Radio, the second data request will record the MOST device addresses, their functionality requirements and capabilities within. The A11 Radio will learn this information and also record the address node sequence on the MOST bus at this point. This node address list will now be stored within the A11 Radio as the MOST bus configuration (called “Last Working MOST ID of Node 1 – 9” on scan tool data display).

When MOST receive, transmit, or control line faults are detected, transmit/receive messages will not received as expected from the wakeup request. The A11 Radio and the K74 Human Machine Interface Control Module will then perform diagnostics to isolate these MOST faults. If the MOST control line is shorted low to 0 V for excess amount of time, the A11 Radio will set a U2098 DTC and K74 Human Machine Interface Control Module will set a U0029 02 DTC. At this point the MOST bus will be unable to communicate until the shorted MOST control line is repaired.

Once the shorted MOST control line diagnostics pass, the A11 Radio will attempt to resend the initial short pulse attempts up to 3 times on the MOST control line. If the expected responses are not received, the A11 Radio continues into a failure mode setting a U0028 DTC and will continue on to send one 300 ms long pulse, which will enable the furthest upstream transmitting device to become the surrogate MOST Master in this MOST fault/diagnostic mode. When the A11 Radio receives this new MOST Master identity, the surrogate MOST master device can be identified based on scan tool data parameter “Surrogate MOST Master Node Upstream Position”. The scan tool should be used to determine the MOST bus configuration and direction by utilizing the “Last Working MOST ID of Node 1 – 9” parameters from the A11 Radio data display. When a fault is present, it will indicate the newly enabled “Surrogate MOST Master Node Upstream Position” from the A11 Radio. This will assist in determining where the MOST bus/control is at fault. The MOST device upstream from the surrogate MOST master device, transmit, receive, or control lines will be the suspect areas for diagnostics at this point. These faults can be associated with any of the MOST transmit, receive, or control line twisted copper wires or possibly an internal device fault.

The K74 Human Machine Interface Control Module will set a U0029 00 DTC when it diagnoses a MOST bus not communicating properly after one attempt. When the DTC U0029 00 is set by the K74 Human Machine Interface Control Module without the corresponding DTC U0028 from the A11 Radio, it will be an indication of an intermittent wiring/device condition.

### Low Speed GMLAN Circuit Description

Low Speed GMLAN Bus is used in applications where a high data rate is not required which allows for the use of less complex components. It is typically used for operator controlled functions where the response time requirements are slower than those required for dynamic vehicle control.

The Low Speed GMLAN Serial Data Network consists of a single wire, ground referenced bus with high side voltage drive. During on road vehicle operation data symbols (1’s and 0’s) are transmitted sequentially at the normal rate of 33.3 Kbit/s. For component programming only, a special high speed data mode of 83.3 Kbit/s may be used.

Unlike the high speed dual wire networks, the single wire low speed network does not use terminating resistors at either end of the network.

The data symbols to be transmitted over the bus are represented by different voltage signals on the bus. When the Low Speed GMLAN Bus is at rest and is not being driven, there is a low signal voltage of approximately 0.2 V. This represents a logic “1”. When a logic “0” is to be transmitted, the signal voltage is driven higher to around 4.0 V or higher.

## Local Interconnect Network (LIN) Circuit Description

The Local Interconnect Network (LIN) Bus consists of a single wire with a transmission rate of 10.417 Kbit/s. This bus is used to exchange information between a master control module and other smart devices which provide supporting functionality. This type of configuration does not require the capacity or speed of either a High Speed GMLAN Bus or Low Speed GMLAN Bus and is thus relatively simpler.

The data symbols (1’s and 0’s) to be transmitted are represented by different voltage levels on the communication bus. When the LIN Bus is at rest and is not being driven, the signal is in a high voltage state of approximately Vbatt. This represents a logic “1”. When a logic “0” is to be transmitted, the signal voltage is driven low to about ground (0.0 V).

## Communication Enable Circuit Description

Devices on High Speed GMLAN Bus enable or disable communication based on the voltage level of the communication enable circuit. When the circuit voltage is high (around 12 V), communications are enabled. When the circuit is low, communications are disabled.

## Data Link Connector (DLC)

The X84 Data Link Connector (DLC) is a standardized 16-cavity connector. Connector design and location is dictated by an industry wide standard, and is required to provide the following:

- Terminal 1 Low speed GMLAN communications terminal
- Terminal 4 Scan tool power ground terminal
- Terminal 5 Common signal ground terminal
- Terminal 6 High speed GMLAN serial data bus (+) terminal
- Terminal 12 Chassis high speed GMLAN serial bus (+) terminal
- Terminal 13 Chassis high speed GMLAN serial bus (-) terminal
- Terminal 14 High speed GMLAN serial data bus (-) terminal
- Terminal 16 Scan tool power, battery positive voltage terminal

## Serial Data Reference

The scan tool communicates over the various buses on the vehicle. When a scan tool is installed on a vehicle, the scan tool will try to communicate with every device that could be optioned into the vehicle. If an option is not installed on the vehicle, the scan tool will display No Comm (or Not Connected) for that optional device. In order to avert misdiagnoses of No Communication with a specific device, refer to CELL Link Error - Link target cell (cell ID 148085) is invalid for this publication. for a list of devices and the buses they communicate with. Use schematics and specific vehicle build RPO codes to determine optional devices.

## Serial Data Gateway Module Description and Operation

The K56 Serial Data Gateway Module is used to handle communications between multiple GMLAN busses and functions as a gateway to isolate the secure networks from the unsecured networks. It was created to mitigate bus loading to support cyber security and new active/advanced safety features like Limited Ability Autonomous Driving and Enhanced Collision Avoidance (if equipped). The K56 Serial Data Gateway Module is used as a frame-to-frame gateway for all functional messages.

Depending on the vehicle contents, the K56 Serial Data Gateway Module is gating between primary High Speed GMLAN Bus, Gateway Expansion High Speed GMLAN Bus, Gateway Isolated High Speed GMLAN Bus, and Chassis High Speed GMLAN Bus. The K56 Serial Data Gateway Module is also gating between primary Low Speed GMLAN Bus and Gateway Isolated Low Speed GMLAN Bus.

Communication between the K56 Serial Data Gateway Module and a scan tool is done through the primary High Speed GMLAN Bus.

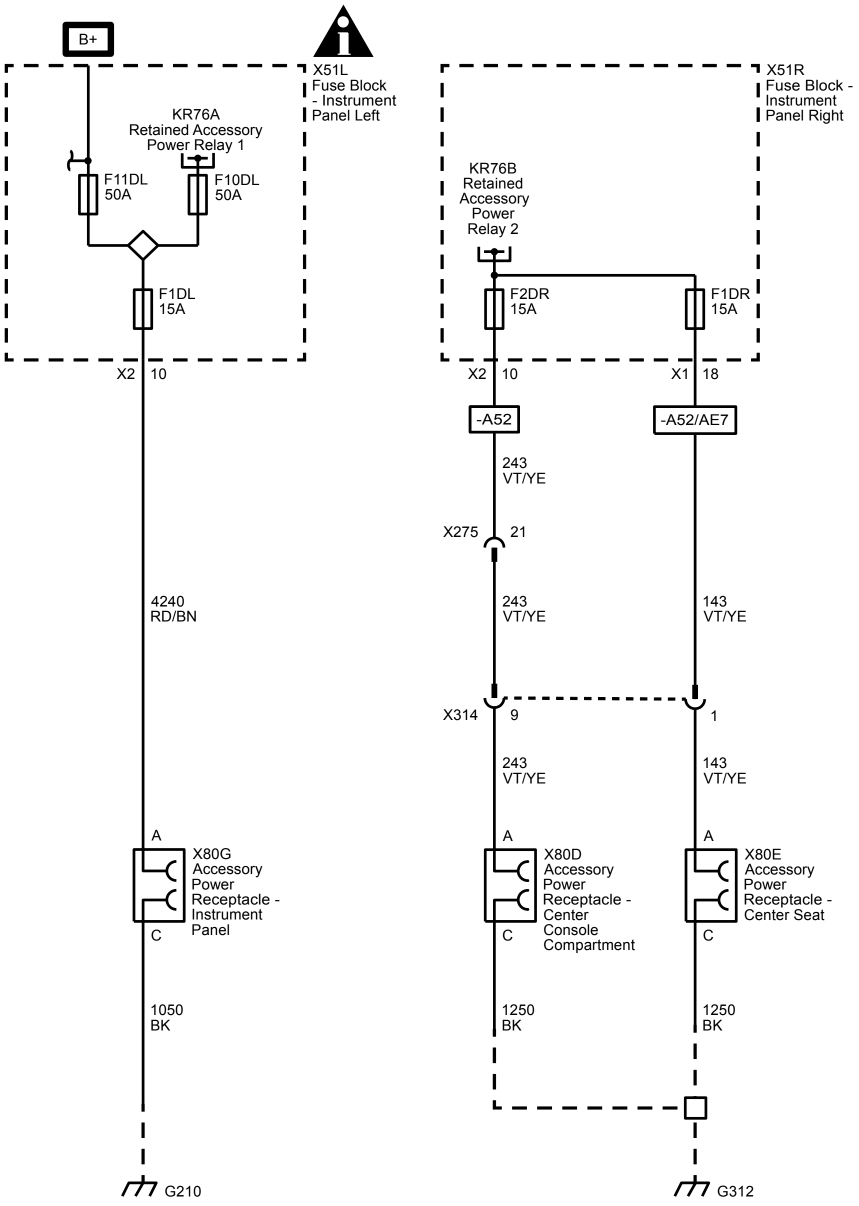
# Power and Signal Distribution

## Power Outlets

### Schematic and Routing Diagrams

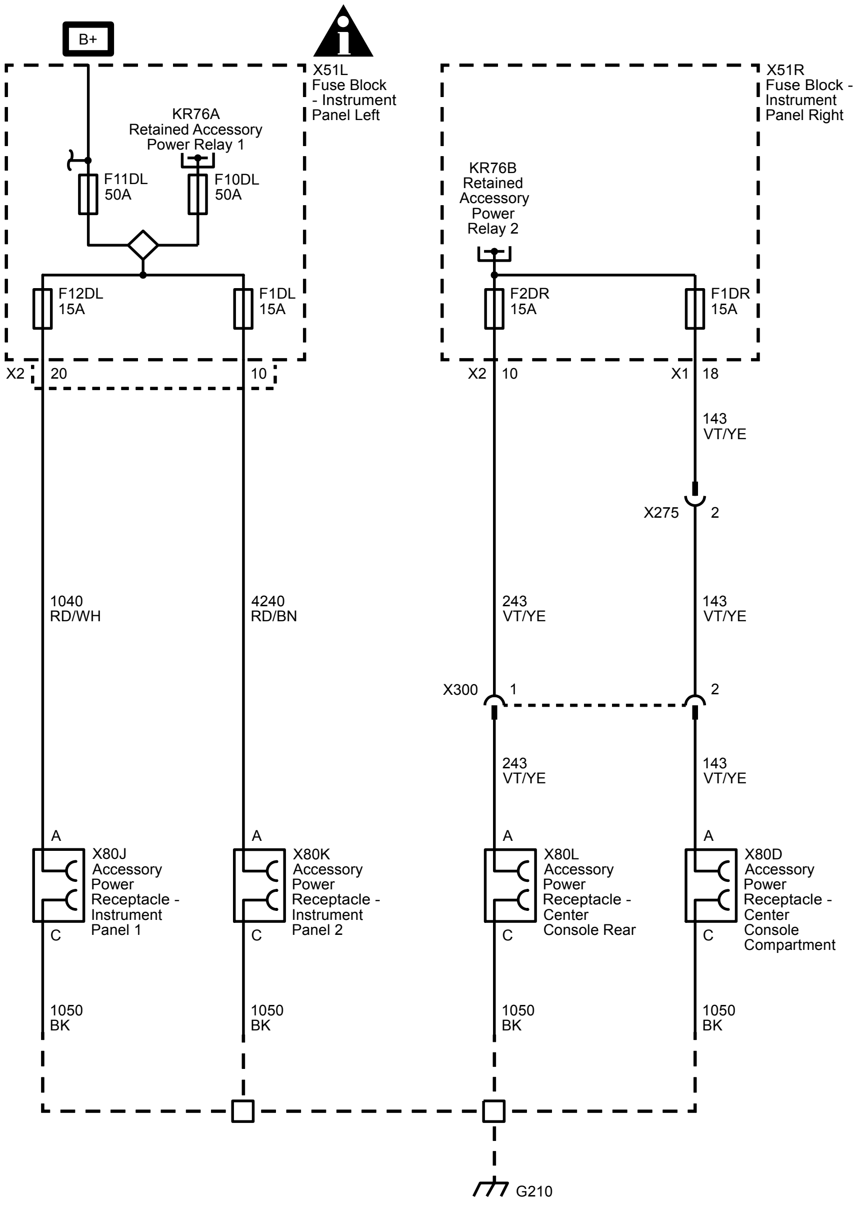
#### Cigar Lighter/Power Outlet Schematics

##### 12-Volt DC Power Outlets (Bench Seat - D09)



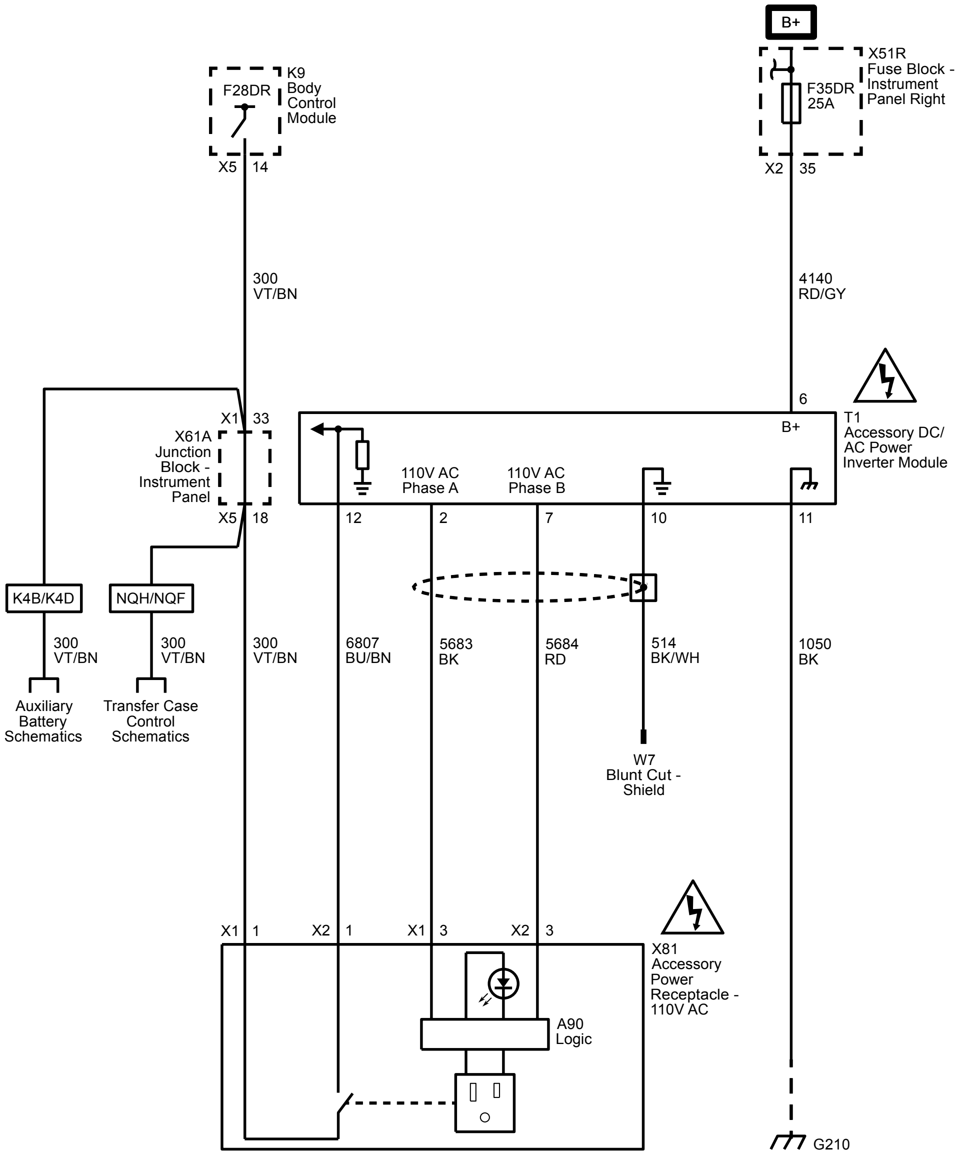
B+
X51L
Fuse Block - Instrument Panel Left
KR76A
Retained Accessory Power Relay 1
F11DL
50A
F10DL
50A
F1DL
15A
X2
10
4240
RD/BN
A
X80G
Accessory Power Receptacle - Instrument Panel
C
1050
BK
G210
X51R
Fuse Block - Instrument Panel Right
KR76B
Retained Accessory Power Relay 2
F2DR
15A
F1DR
15A
X2
10
X1
18
-A52
-A52/AE7
243
VT/YE
X275
21
243
VT/YE
143
VT/YE
X314
9
1
243
VT/YE
143
VT/YE
A
X80D
Accessory Power Receptacle - Center Console Compartment
C
A
X80E
Accessory Power Receptacle - Center Seat
C
1250
BK
1250
BK
G312

# 12-Volt DC Power Outlets (with Console - D07)

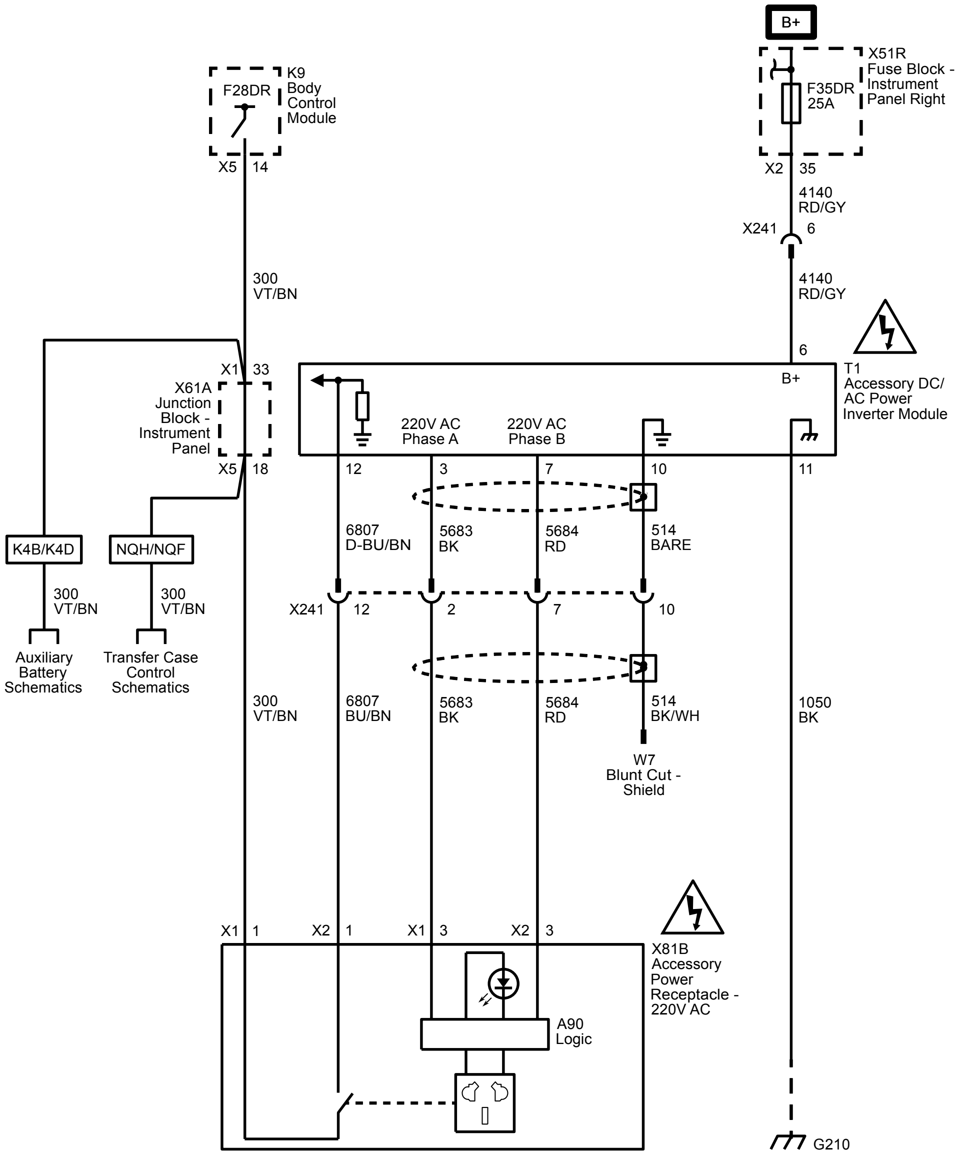


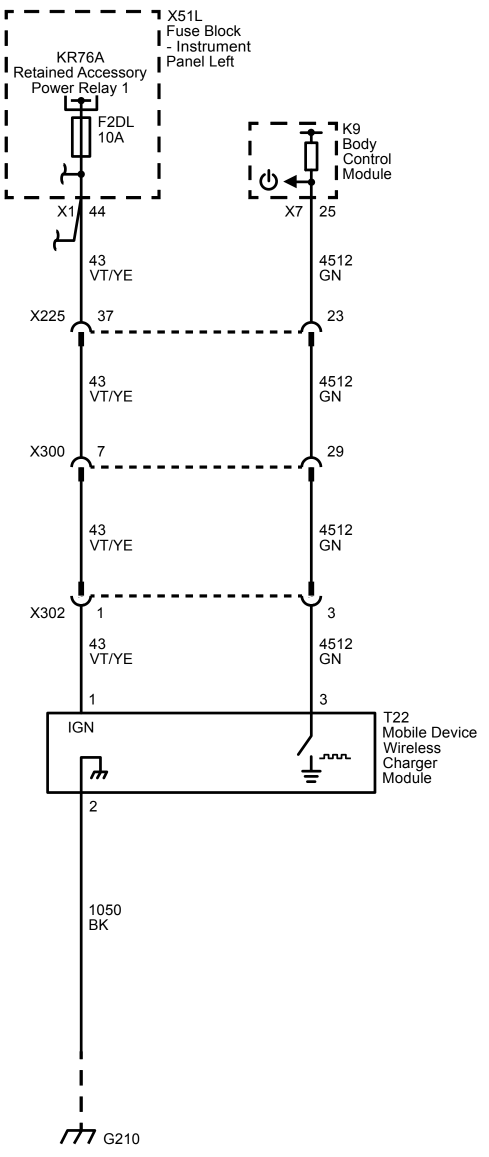
B+
X51L
Fuse Block - Instrument Panel Left
KR76A
Retained Accessory Power Relay 1
F11DL
50A
F10DL
50A
F12DL
15A
F1DL
15A
X2
20
10
X51R
Fuse Block - Instrument Panel Right
KR76B
Retained Accessory Power Relay 2
F2DR
15A
F1DR
15A
X2
10
X1
18
143
VT/YE
X275
2
1040
RD/WH
4240
RD/BN
243
VT/YE
143
VT/YE
X300
1
2
243
VT/YE
143
VT/YE
A
X80J
Accessory Power Receptacle - Instrument Panel 1
C
A
X80K
Accessory Power Receptacle - Instrument Panel 2
C
A
X80L
Accessory Power Receptacle - Center Console Rear
C
A
X80D
Accessory Power Receptacle - Center Console Compartment
C
1050
BK
1050
BK
1050
BK
1050
BK
G210

## 110-Volt AC Power Outlet (KI4)


B+
X51R
Fuse Block - Instrument Panel Right
F35DR
25A
X2
35
4140
RD/GY
K9
Body Control Module
F28DR
X5
14
300
VT/BN
X1
33
X61A
Junction Block - Instrument Panel
X5
18
K4B/K4D
NQH/NQF
300
VT/BN
300
VT/BN
300
VT/BN
Auxiliary Battery Schematics
Transfer Case Control Schematics
6
B+
T1
Accessory DC/AC Power Inverter Module
110V AC Phase A
110V AC Phase B
12
2
7
10
11
6807
BU/BN
5683
BK
5684
RD
514
BK/WH
1050
BK
W7
Blunt Cut - Shield
X1
1
X2
1
X1
3
X2
3
X81
Accessory Power Receptacle - 110V AC
A90
Logic
G210

# 220-Volt AC Power Outlet (KI5)


B+
X51R
Fuse Block -
Instrument
Panel Right
F35DR
25A
X2
35
4140
RD/GY
X241
6
4140
RD/GY
K9
Body
Control
Module
F28DR
X5
14
300
VT/BN
X1
33
X61A
Junction
Block -
Instrument
Panel
X5
18
6
B+
T1
Accessory DC/
AC Power
Inverter Module
220V AC
Phase A
220V AC
Phase B
12
3
7
10
11
K4B/K4D
NQH/NQF
300
VT/BN
300
VT/BN
Auxiliary
Battery
Schematics
Transfer Case
Control
Schematics
6807
D-BU/BN
5683
BK
5684
RD
514
BARE
X241
12
2
7
10
300
VT/BN
6807
BU/BN
5683
BK
5684
RD
514
BK/WH
W7
Blunt Cut -
Shield
1050
BK
X1
1
X2
1
X1
3
X2
3
X81B
Accessory
Power
Receptacle -
220V AC
A90
Logic
G210

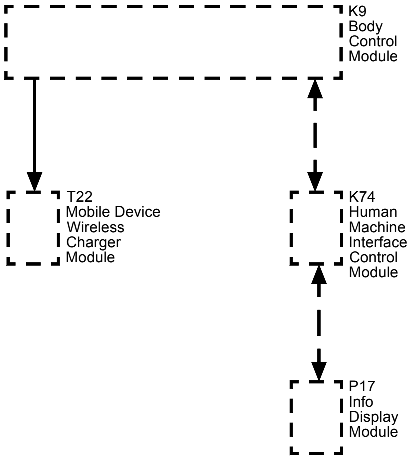

X51L
Fuse Block
- Instrument
Panel Left
KR76A
Retained Accessory
Power Relay 1
F2DL
10A
K9
Body
Control
Module
X1
44
X7
25
43
VT/YE
4512
GN
X225
37
23
43
VT/YE
4512
GN
X300
7
29
43
VT/YE
4512
GN
X302
1
3
43
VT/YE
4512
GN
1
3
IGN
T22
Mobile Device
Wireless
Charger
Module
2
1050
BK
G210

# Description and Operation

## Mobile Device Wireless Charger Description and Operation

### Mobile Device Wireless Charging System

### Mobile Device Wireless Charging System Block Diagram



The Mobile Device Wireless Charging System (WCS) is an system for wirelessly charging mobile devices. It is capable of charging the batteries of compatible mobile devices. A compatible device is one that is compliant with Power Matters Alliance (PMA) or Wireless Power Consortium (WPC) Standard, meaning that it is equipped with a PMA or WPC wireless charge “receiver” that will work with the charge “transmitter” installed in the vehicle. The devices may utilize built-in charging circuitry or an adapter (external plug-in device which contains the charging circuitry). To check for phone or other device compatibility, refer to GM Total Connect.

**Warning: Remove all objects from the charging pad before charging your mobile device. Objects, such as coins, keys, rings, paper clips, or cards, between the phone and charging pad will become very hot. On the rare occasion that the charging system does not detect an object, and the object gets wedged between the phone and charger, remove the phone and allow the object to cool before removing it from the charging pad, to prevent burns.**

### Charging

To charge a device, place it on the charging surface in the vehicle. There is a charging coil located in the center of the charging surface. The device has a charging coil typically near the center of the device. These coils must be lined up in order for charging to proceed. When the interruptible retained accessory power (IRAP) relay is closed (this is true typically when vehicle ignition is in Run or Accessory position), the WCS will detect the device, establish communications with the device to confirm it is a compatible device, and then deliver charging power to the device via wireless interface. The WCS will be able to deliver up to 5W of power to compatible devices. It shall only enter a charging state if communication is established and a compatible device is identified.

The WCS shall not enter a charging state if there is no communication established with a compatible device. If a non-compatible device or metallic foreign object is detected, the WCS will not transfer power. The charger monitors its internal temperature and will shut down if the charger temperature exceeds 185F (85C).

### Indicator

The body control module will detect the device battery is charging and send a serial data message on the GMLAN bus to the radio display. The radio display will indicate a device is currently charging. When the indicator is toggling on and off this indicates a thermal limit has been reached and the device will not charge. For more information refer to the infotainment owners manual.

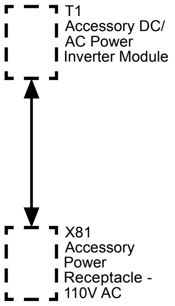
## Power Outlets Description and Operation

### 12 Volt Power Outlet Receptacle Description and Operation

The vehicle is fitted with a 12 V accessory power receptacle. The accessory power receptacles are controlled by an ignition operated relay. The accessory power receptacles are operational when the ignition is turned to either the On or the Accessories positions. The X80J and X80K accessory power receptacles may be configured to be operational when the ignition is Off by changing the position of the 50A fuse from the F10DL position to the F11DL position in the left instrument panel fuse block.

### 110 Volt Power Outlet Receptacle System Description

### Power Outlets Block Diagram



The alternating current (AC) accessory power outlet system consists of the accessory DC/AC power inverter module and the accessory power receptacle – 110 V AC. The accessory DC/AC power inverter module converts 12 V direct current (DC) battery power to 110 V at 60 Hertz (Hz) AC power to operate AC powered devices. The accessory DC/AC power inverter module provides up to 150 watts of power. The accessory power receptacle – 110 V AC provides the usual connection for AC powered devices.

### 110 Volt Power Outlet Receptacle System Operation

The accessory DC/AC power inverter module receives fuse protected battery voltage and is connected to the 12 V electrical system ground. The accessory power receptacle – 110 V AC has an internal switch, that detects when an AC powered device is plugged into the outlet. When the ignition is ON, and an AC powered device is plugged into the accessory power receptacle – 110 V AC, the normally open switch in the accessory power receptacle – 110 V AC, closes. When the accessory DC/AC power inverter module detects the voltage from the accessory power receptacle – 110 V AC switch, the inverter module begins to supply 110 V AC to the accessory power receptacle – 110 V AC after a 1.5 s delay. The accessory AC power system is protected against circuit overload and circuit shorts to ground.

### 110 Volt Power Outlet Receptacle Isolation Fault Protection

The accessory DC/AC power inverter module contains a ground fault circuit interrupter (GFCI). GFCI monitors the 110 V circuit for a short to vehicle chassis ground. If a 110 V AC short to ground is detected, the accessory DC/AC power inverter module will turn OFF. The module remains OFF, until the AC powered device is unplugged from the outlet, and then plugged into the outlet after a 3 s delay.

### 110 Volt Power Outlet Receptacle Overload Shutdown

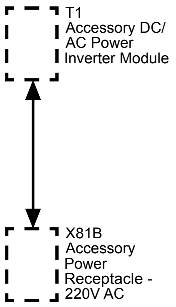
The accessory DC/AC power inverter module will turn OFF if the current in the 110 V circuit is greater than 3.8 A for 1 s , or 2.5 A for 10 s . The module will turn ON again, when the AC powered device is unplugged from the outlet, and then plugged into the outlet after a 3 s delay.

### 110 Volt Power Outlet Receptacle Internal Shutdown

The accessory DC/AC power inverter module will turn OFF if the B+ supply voltage is greater than 16.5 V or less than 11 V. The module will also turn OFF if the device temperature is greater than 85°C (185°F). The module will turn ON again, after the shutdown condition is corrected, and the AC powered device is unplugged from the outlet, and then plugged into the outlet.

### 230 Volt Power Outlet Receptacle System Description

## Power Outlets Block Diagram



The alternating current (AC) accessory power outlet system consists of the accessory DC/AC power inverter module and the accessory power receptacle – 220V AC. The accessory DC/AC power inverter module converts 12 V direct current (DC) battery power to 220–230 V at 50 Hertz (Hz) AC power to operate AC powered devices. The accessory DC/AC power inverter module provides up to 150 watts of power. The accessory power receptacle – 220V AC provides the usual connection for AC powered devices.

### 230 Volt Power Outlet Receptacle System Operation

The accessory DC/AC power inverter module receives fuse protected battery voltage and is connected to the 12 V electrical system ground. The accessory power receptacle – 220V AC has an internal switch, that detects when an AC powered device is plugged into the outlet. When the ignition is ON, and an AC powered device is plugged into the accessory power receptacle – 220V AC, the normally open switch in the accessory power receptacle – 220V AC, closes. When the accessory DC/AC power inverter module detects the voltage from the accessory power receptacle – 220V AC switch, the inverter module begins to supply 220–230 V AC to the accessory power receptacle – 220V AC after a 1.5 second delay. The accessory AC power system is protected against circuit overload and circuit shorts to ground.

### 230 Volt Power Outlet Receptacle Isolation Fault Protection

The accessory DC/AC power inverter module contains a ground fault circuit interrupter (GFCI). GFCI monitors the 230 V circuit for a short to vehicle chassis ground. If a 230 V AC short to ground is detected, the accessory DC/AC power inverter module will turn OFF. The module remains OFF, until the AC powered device is unplugged from the outlet, and then plugged into the outlet after a 3 s delay.

### 230 Volt Power Outlet Receptacle Overload Shutdown

The accessory AC/DC power control module will turn OFF if the current in the 230 V circuit is greater than 3.8 A for 1 second, or 2.5 A for 10 seconds. The module will turn ON again, when the AC powered device is unplugged from the outlet, and then plugged into the outlet after a 3 second delay.

### 230 Volt Power Outlet Receptacle Internal Shutdown

The accessory DC/AC power inverter module will turn OFF if the B+ supply voltage is greater than 16.5 V or less than 11 V. The module will also turn OFF if the device temperature is greater than 85°C (185°F). The module will turn ON again, after the shutdown condition is corrected, and the AC powered device is unplugged from the accessory power receptacle – 220V AC, and then plugged into the accessory power receptacle – 220V AC.

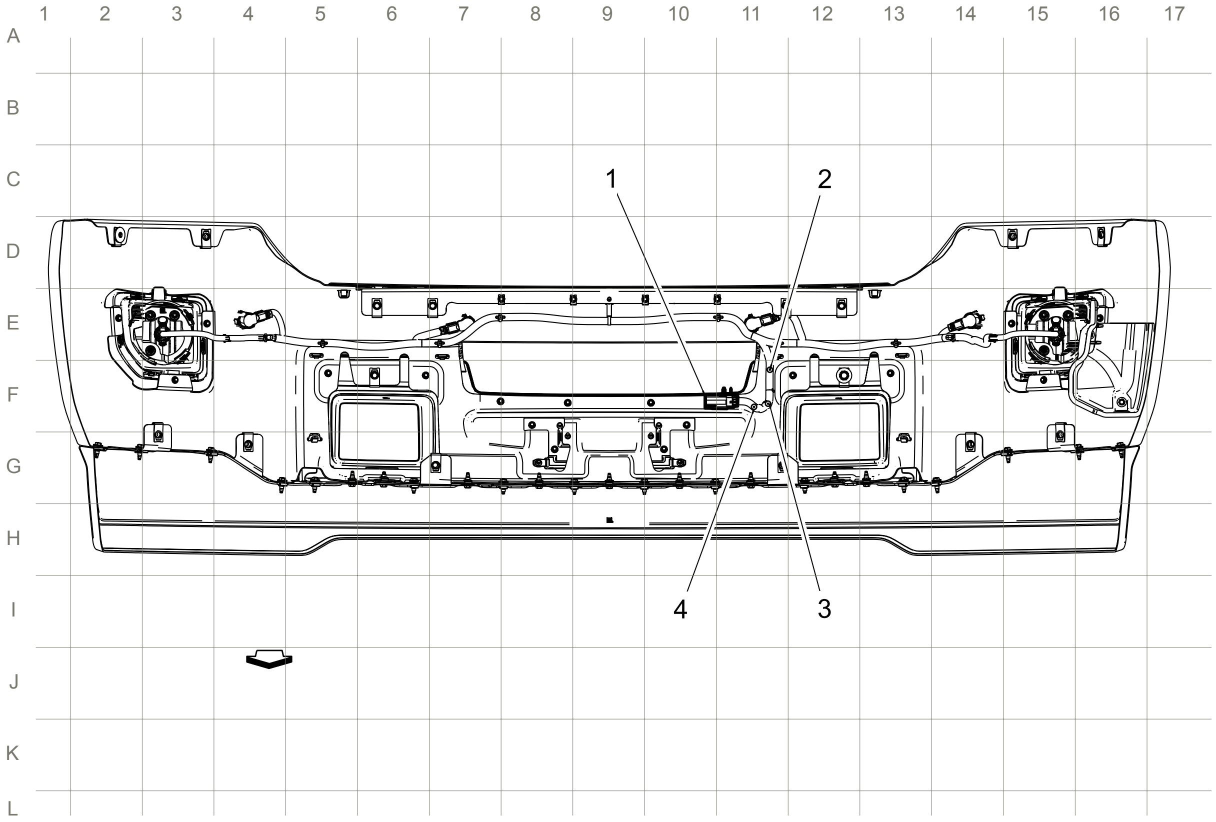
# Power and Signal Distribution

## Wiring Systems and Power Management

### Schematic and Routing Diagrams

#### Harness Routing Views

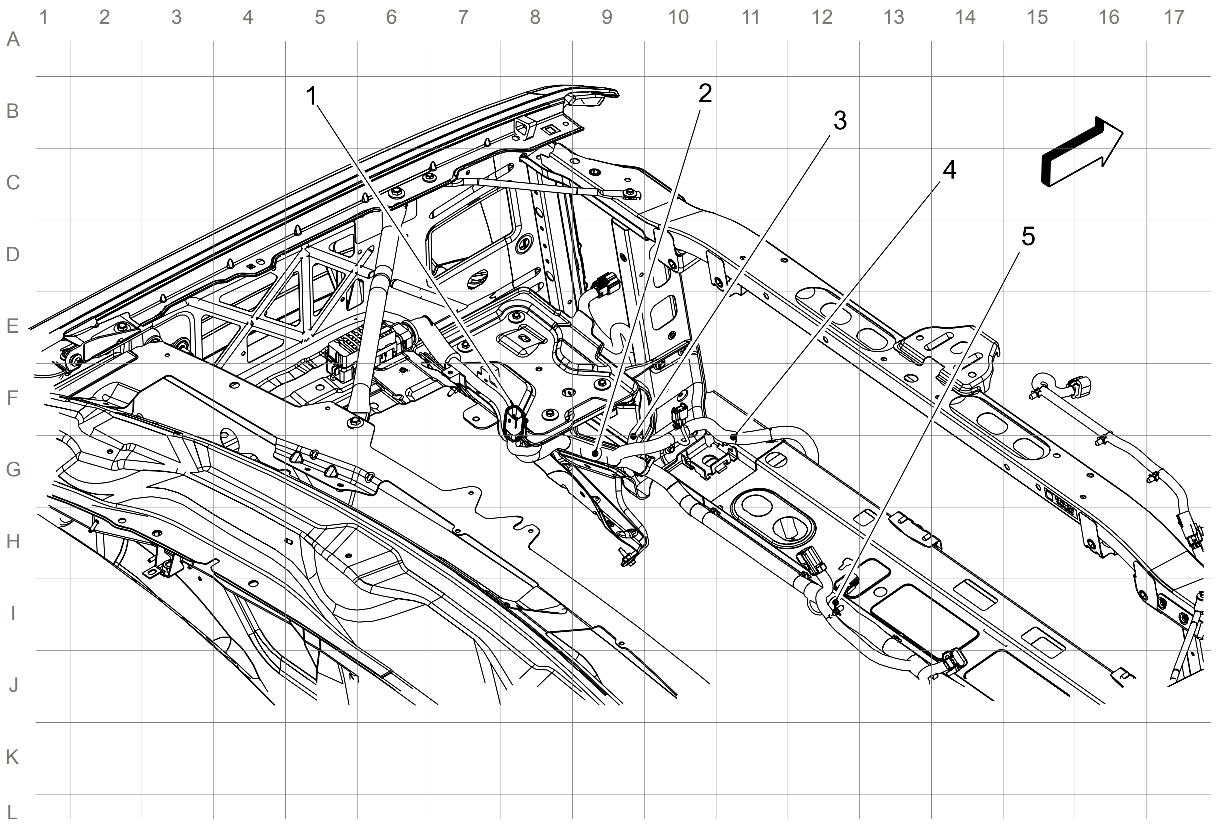
#### Front Bumper Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
1
2
4
3

**Items**

1. X100 (T3U or UD5)
2. J107
3. J105
4. J101

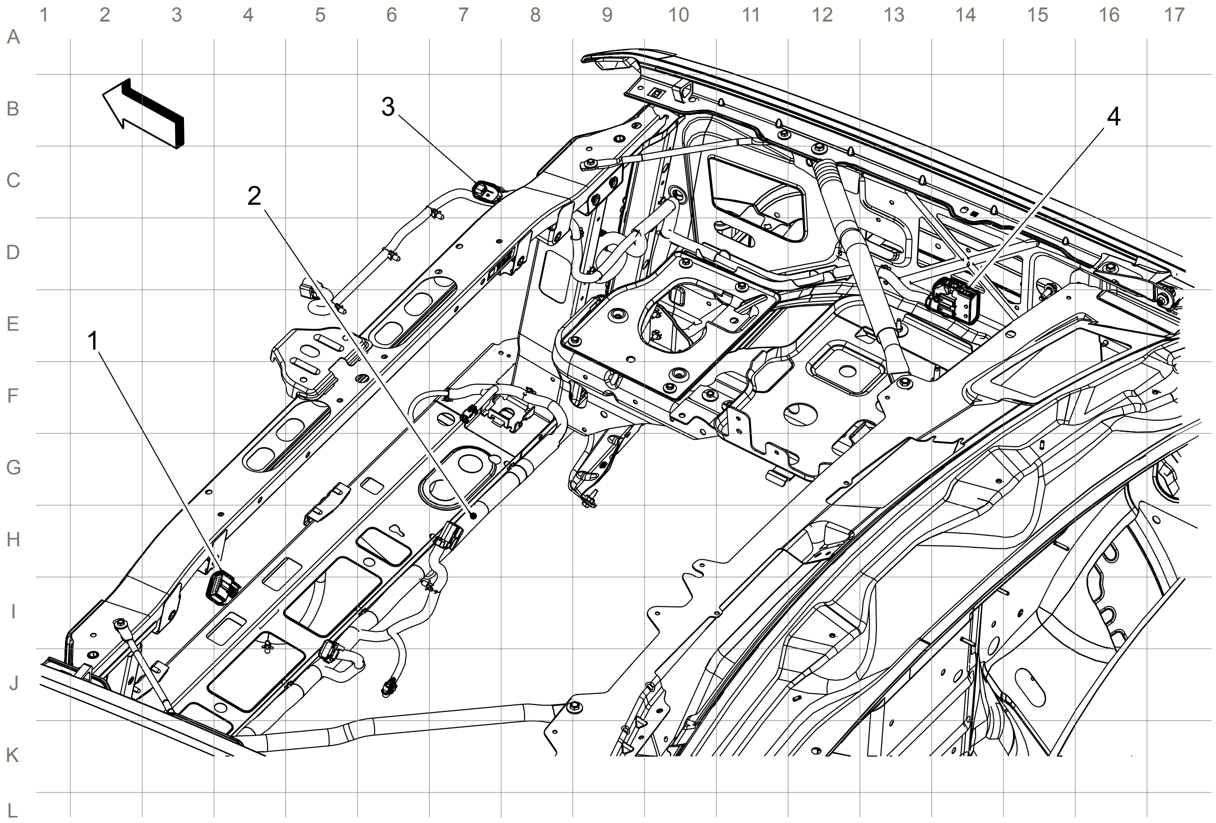
# Forward Lamp Harness Routing - Left Engine Compartment (HP5)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5

**Items**

1. X105 (1500)
2. J119
3. J115
4. J114
5. J130

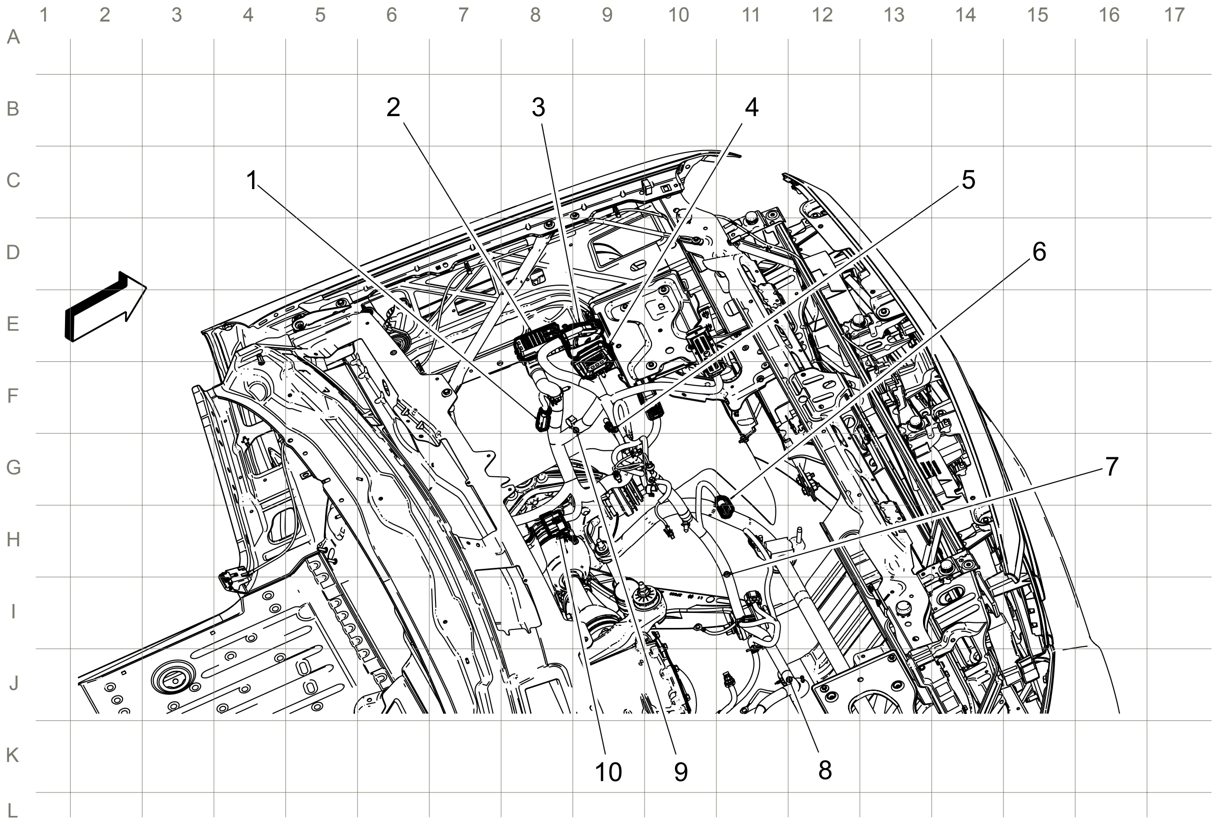
## Forward Lamp Harness Routing - Right Engine Compartment (HP5)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
3
4
2
1

**Items**

1. X110
2. J125
3. X132 (HP5)
4. X150

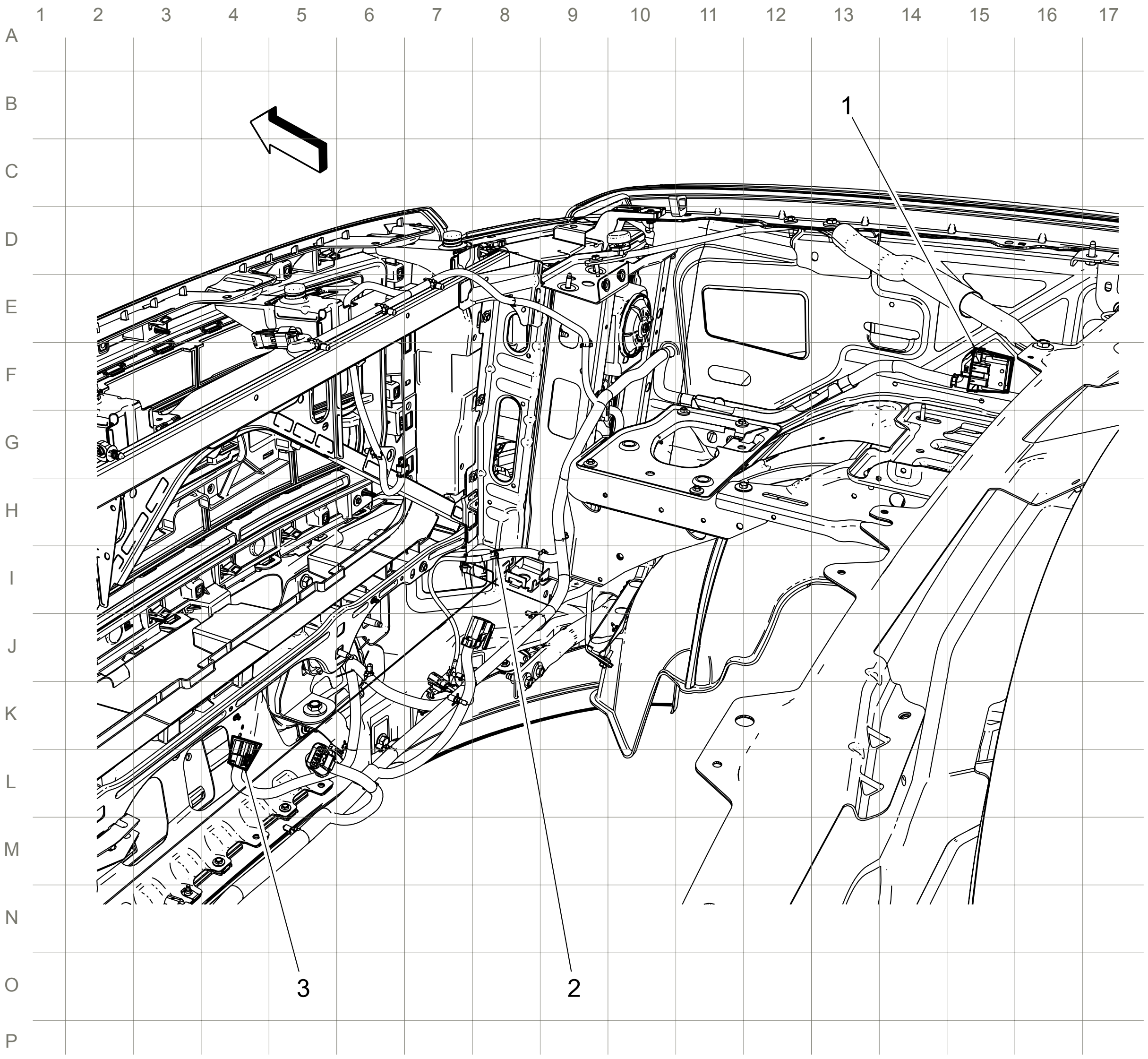
## Engine Compartment Left Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
2
3
4
1
5
6
7
10
9
8

**Items**

1. X111 (NQF, NQG or NQH)
2. X50A Fuse Block - Underhood
3. X115
4. X101 (L5P)
5. J124
6. X102 (L5P)
7. J113 (L5P)
8. J126
9. J165
10. X125

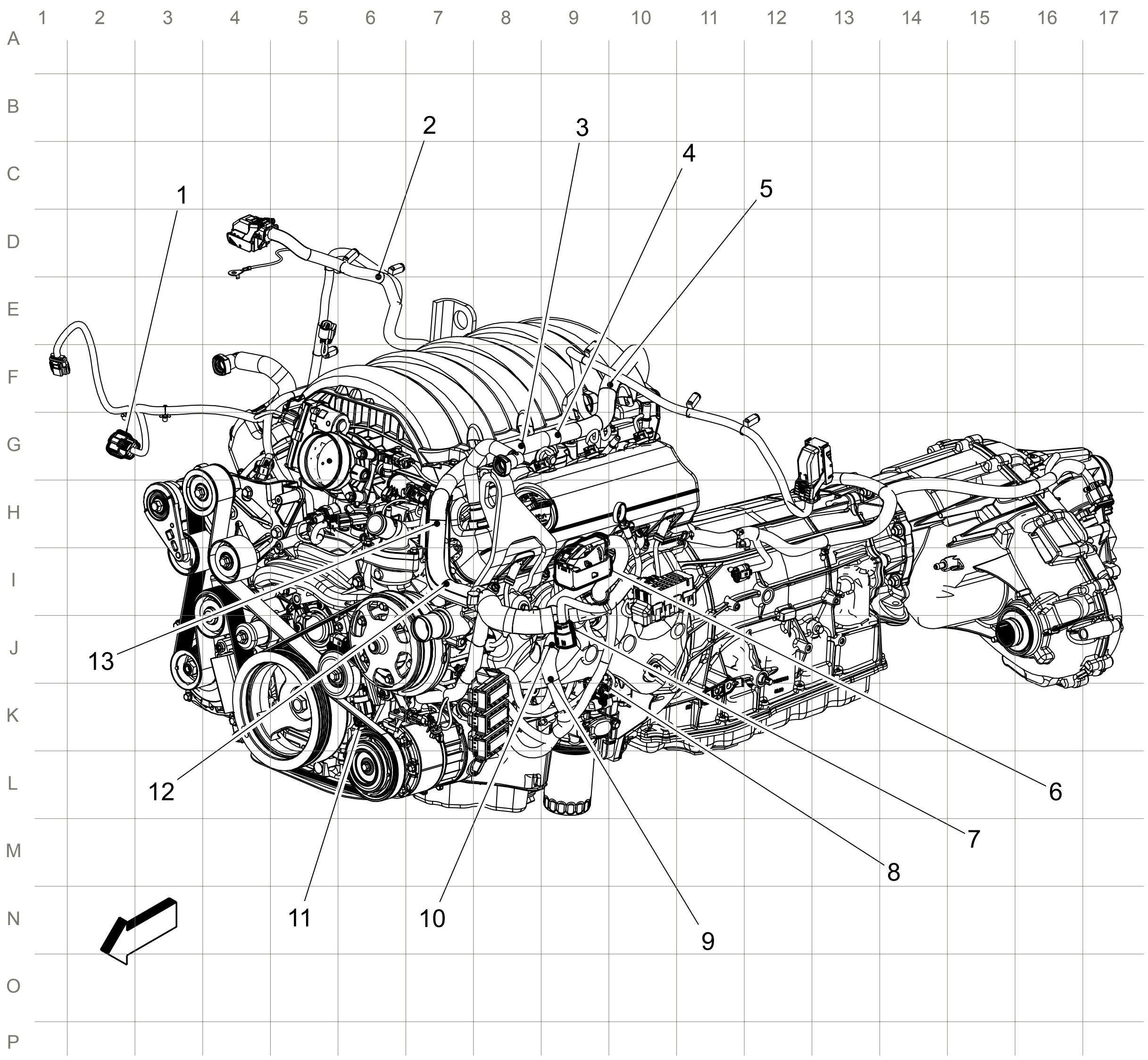
## Engine Compartment Right Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3

**Items**

1. X150
2. J125
3. X100 (T3U or UD5)

## Engine Harness Routing - Left Front (L8B)

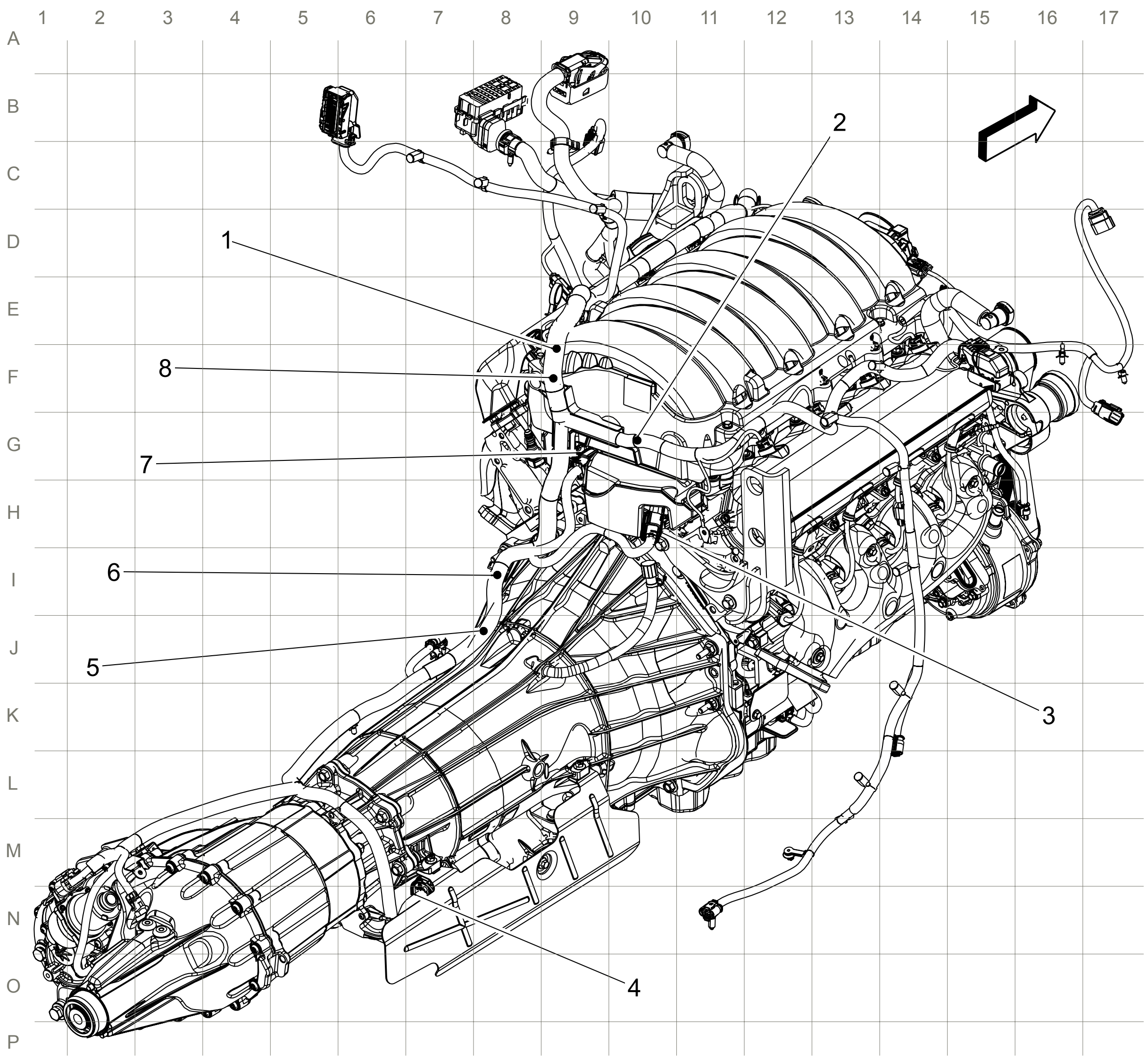

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6
7
8
9
10
11
12
13

**Items**

1. X116 (HP5)
2. J100 (HP5)
3. J126
4. J128 (HP5)
5. J165
6. X115
7. X105 (1500)
8. X111 (NQF, NQG or NQH)
9. J125
10. J124
11. X154 (1500)

12. J163
13. J161

## Engine Harness Routing - Right Rear (L8B)

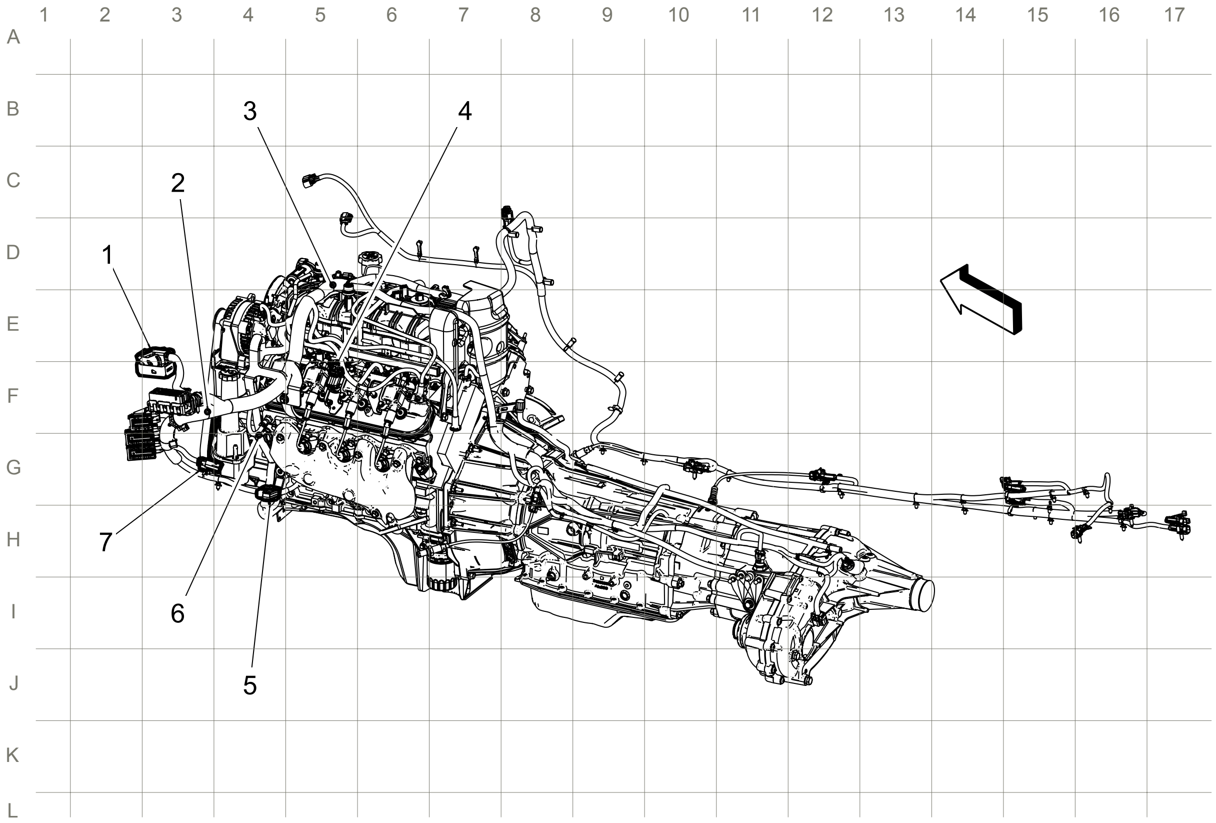


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P

**Items**

1. J167
2. J166
3. X161 (1500)
4. X175
5. J179
6. J178 (M5U/M5X)
7. X160 (1500)
8. J162

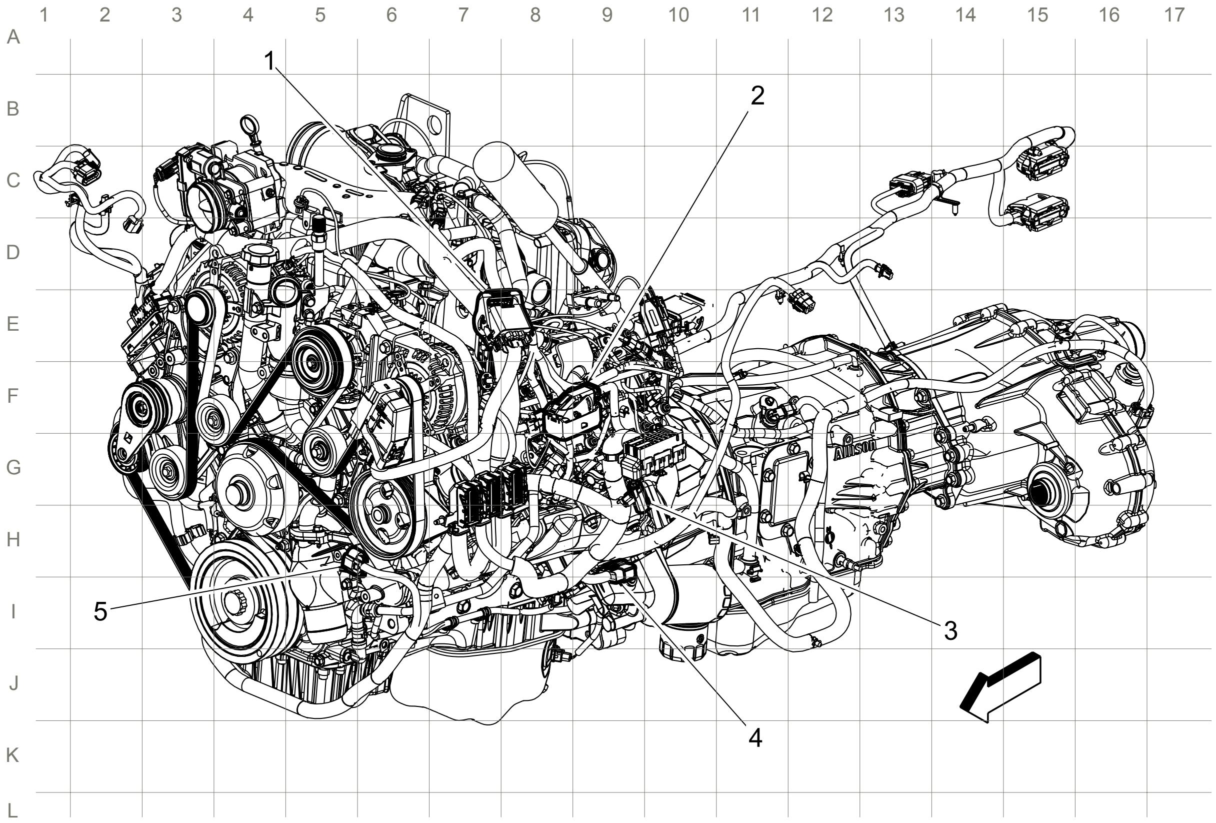
## Left Side of Engine Harness Routing (L96)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
3
4
2
1
7
6
5

**Items**

1. X115
2. J165
3. J123
4. X171 (L96 or LC8)
5. X125
6. J125
7. X111 (NQF, NQG or NQH)

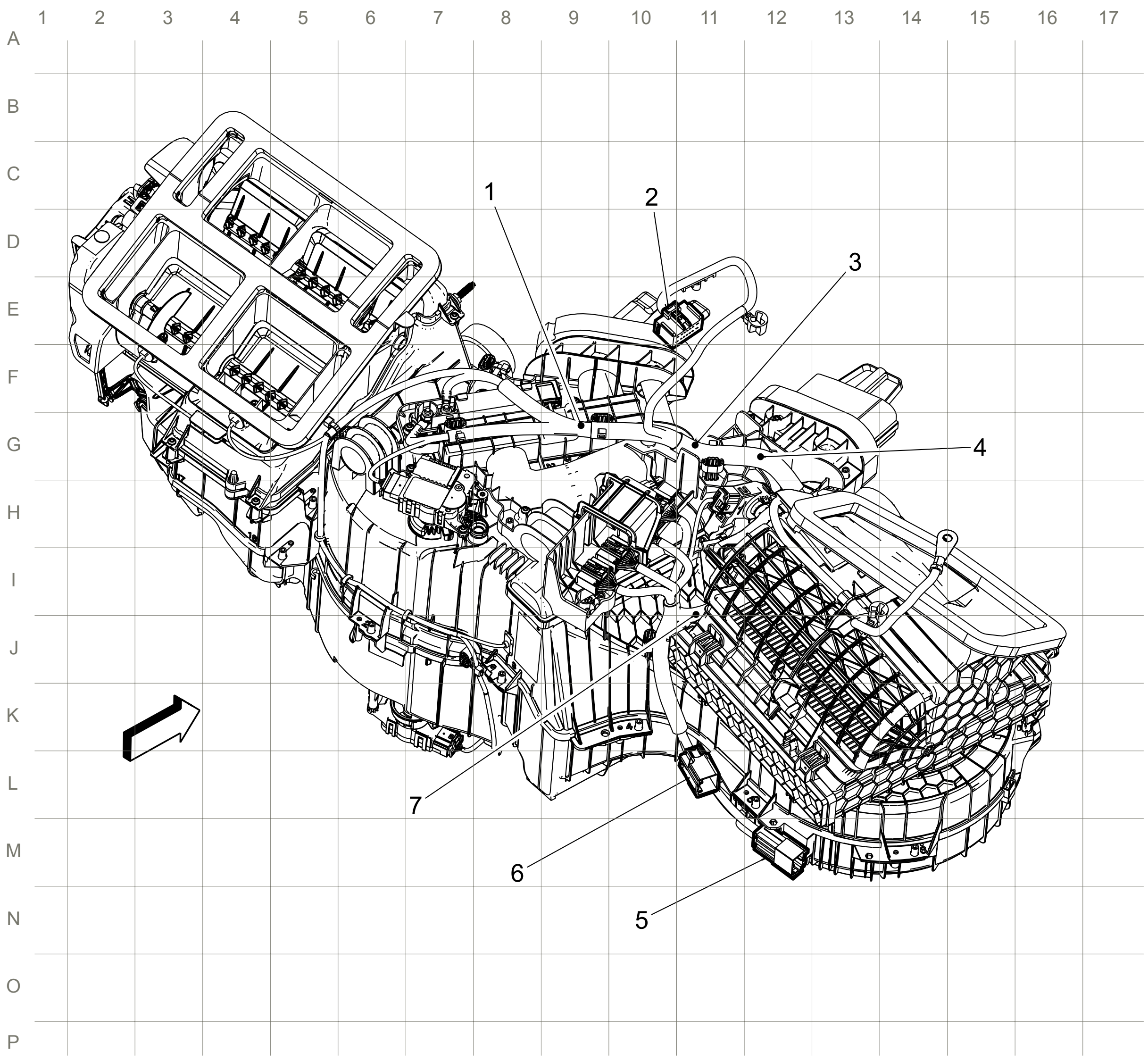
## Left Side of Engine Harness Routing (L5P)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
1
2
3
4
5

**Items**

1. X101 (L5P)
2. X115
3. X111 (NQF, NQG or NQH)
4. X125
5. X102 (L5P)

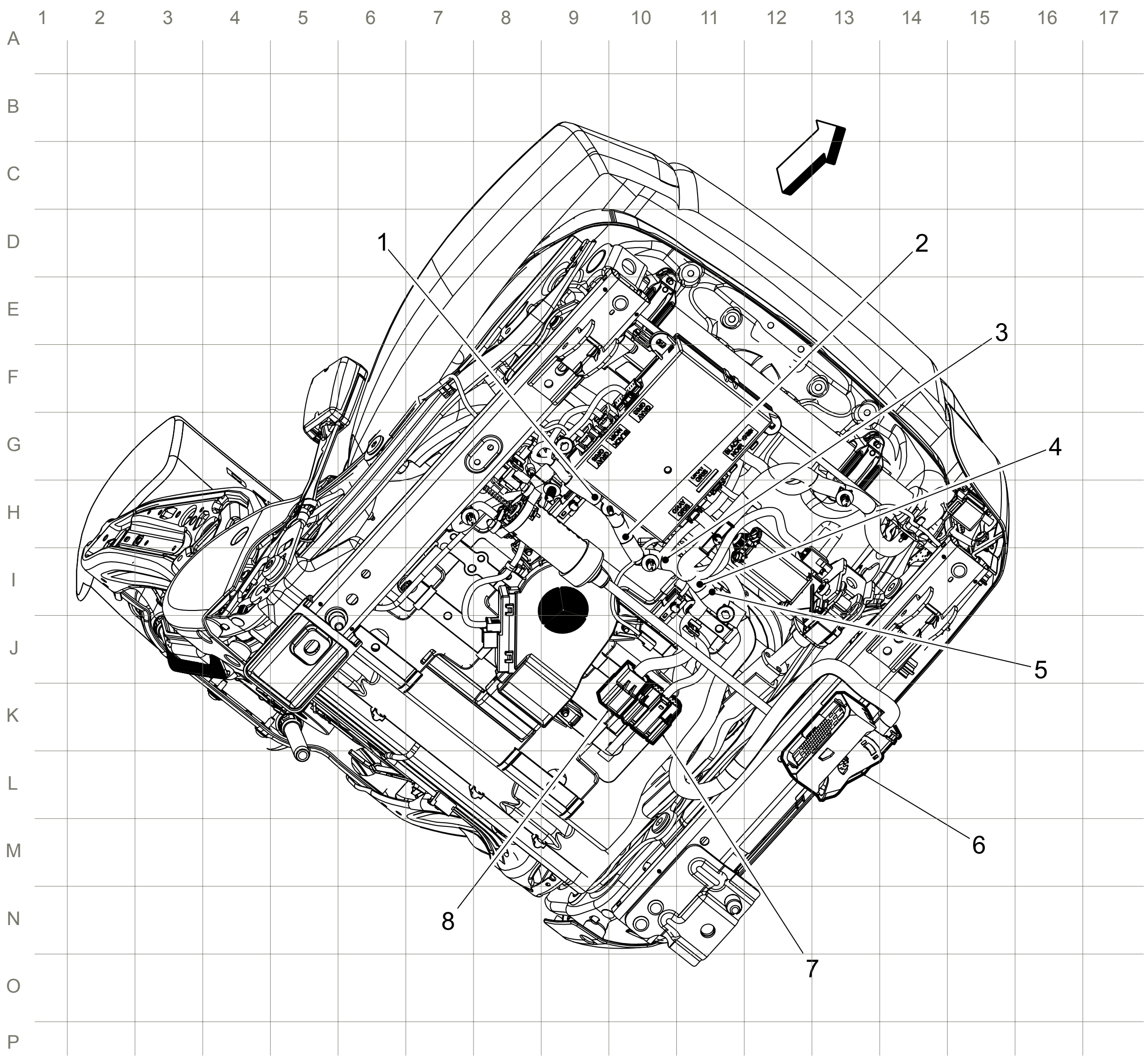
## HVAC Assembly Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6
7

**Items**

1. J258
2. X215
3. J255
4. J216
5. X217
6. X216
7. J257

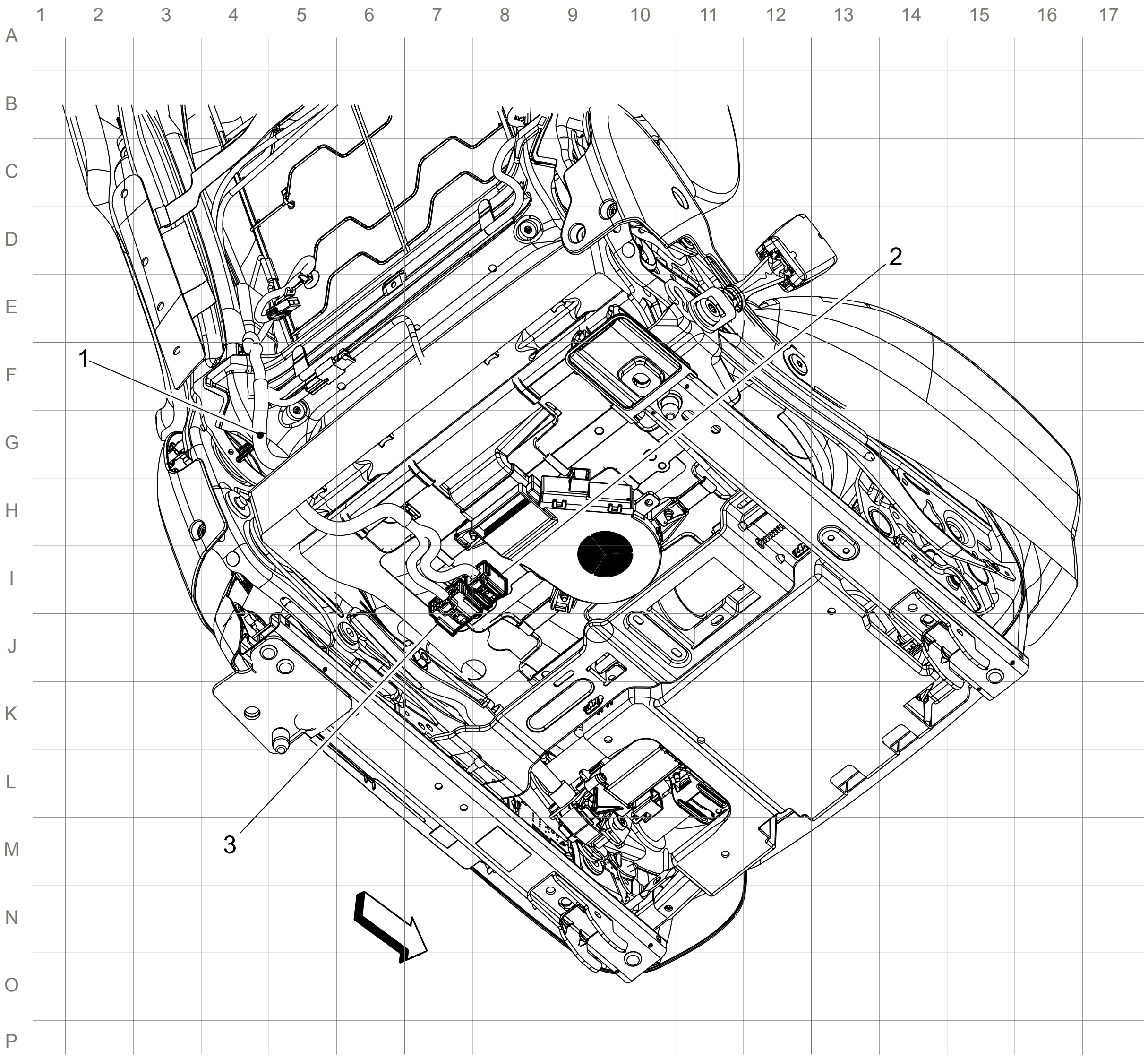
## Bottom of Driver Seat Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6
7
8

**Items**

1. J314
2. J315
3. J313
4. J316
5. J317
6. X310
7. X312
8. X311

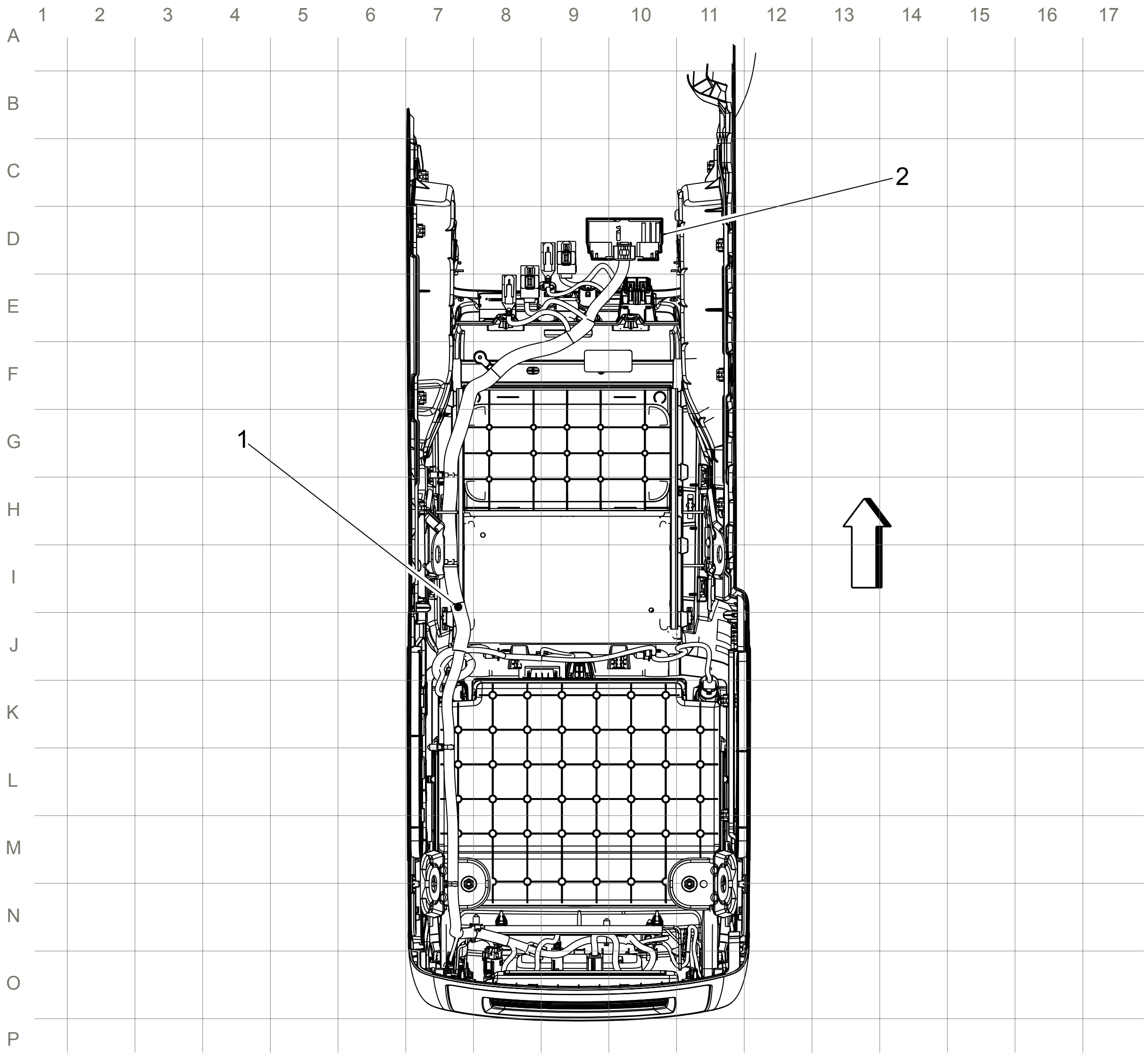
## Back of Driver Seat Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3

**Items**

1. J313
2. X311
3. X312

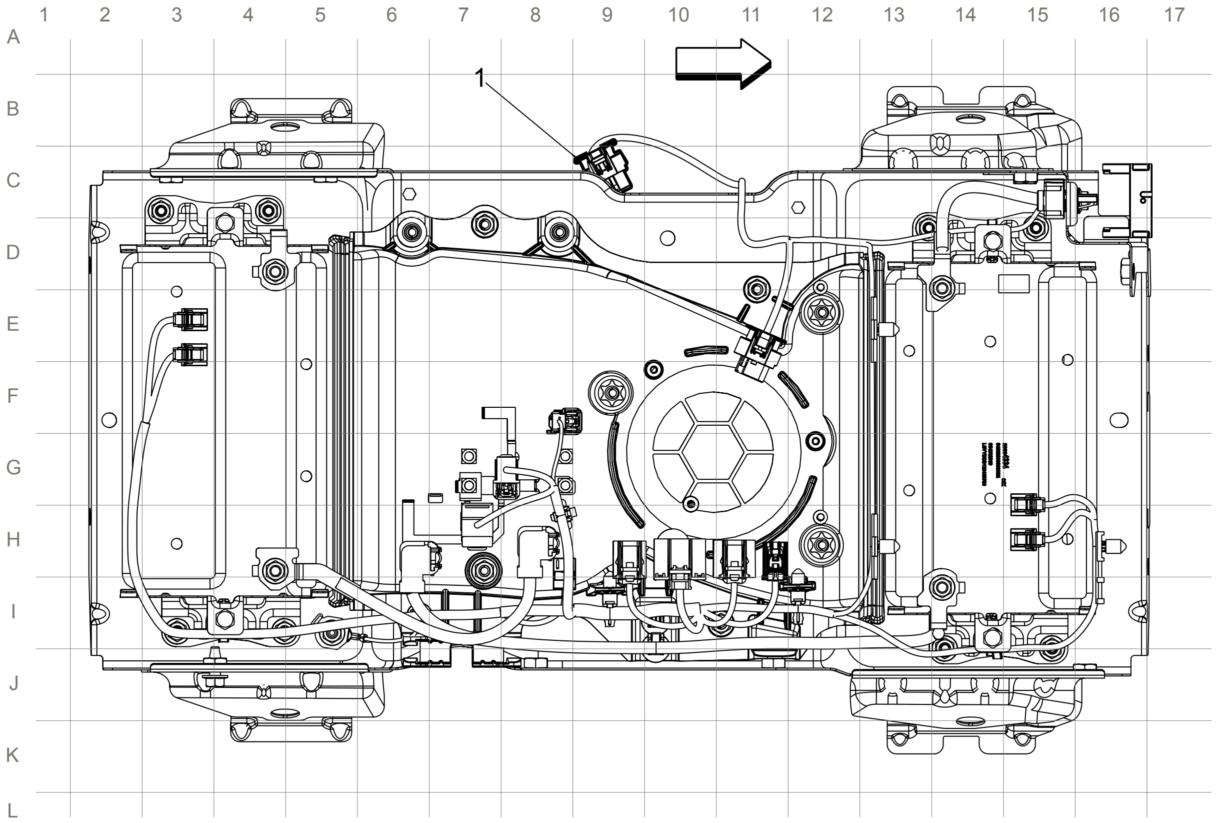
## Floor Console Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2

**Items**

1. J358
2. X300 (D07)

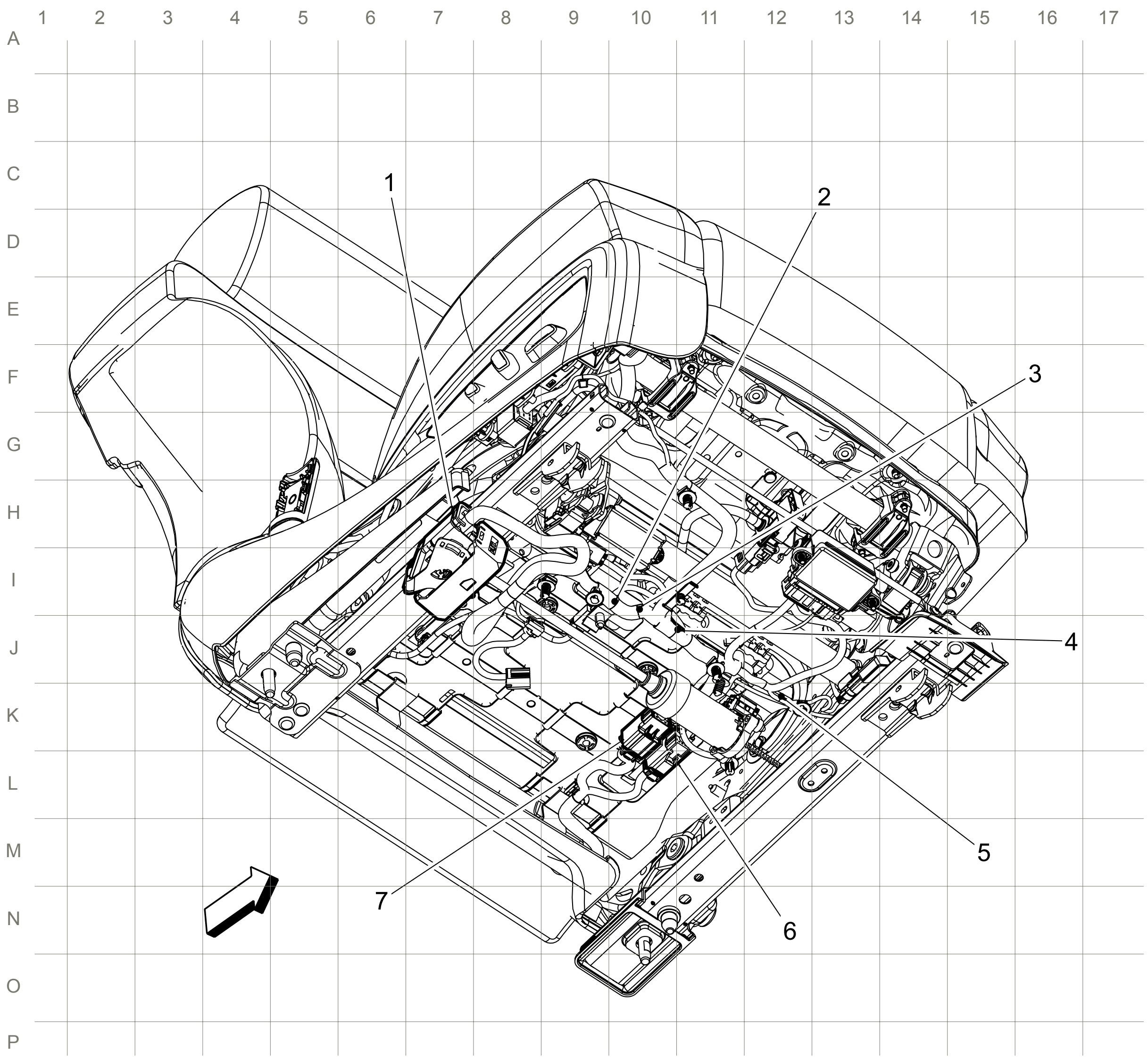
## High Voltage Battery Monitoring Harness Routing (HP5)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
1

**Items**

1. X363 (HP5)

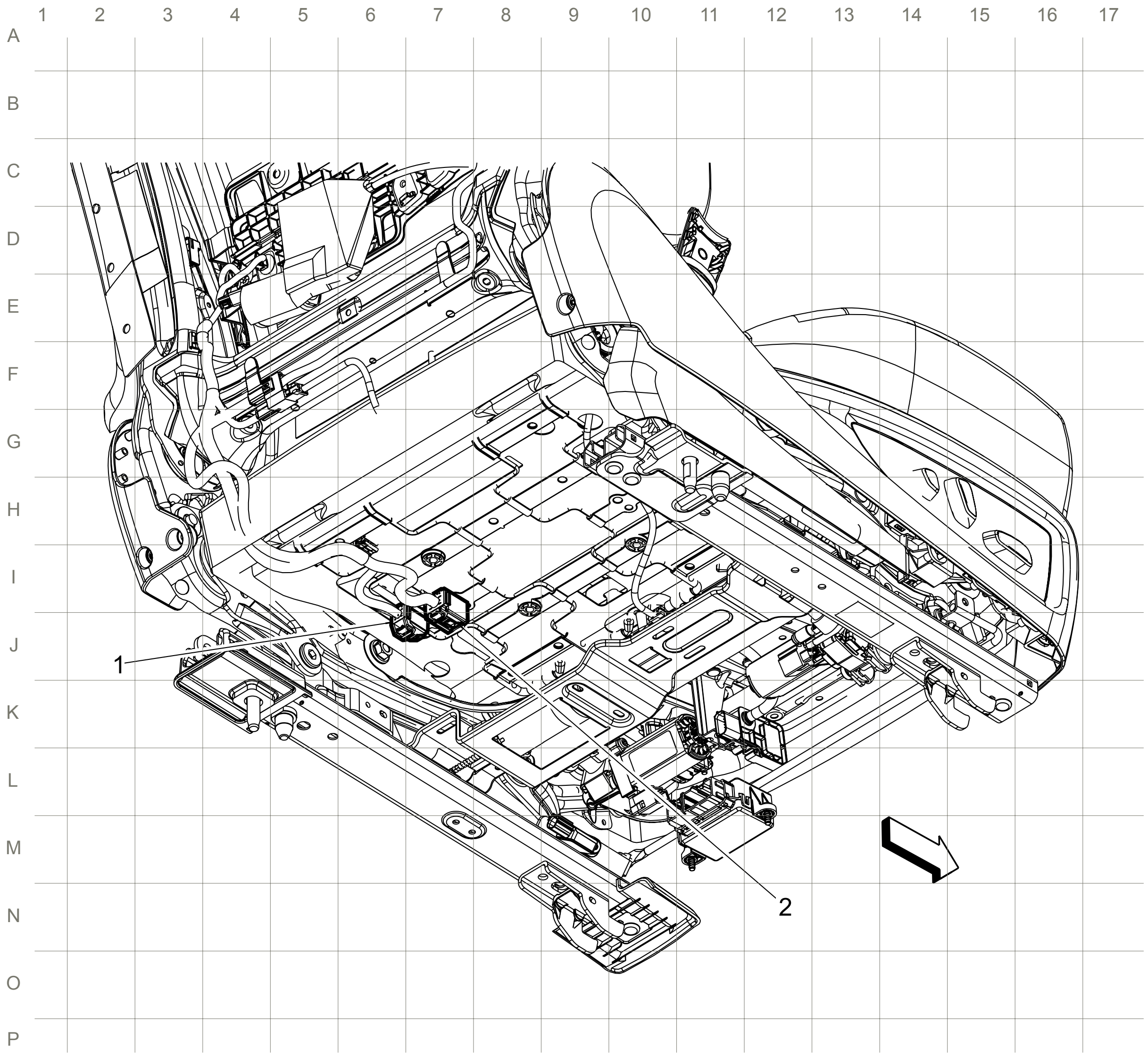
## Bottom of Passenger Seat Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6
7

**Items**

1. X320
2. J323
3. J327
4. J326
5. J324
6. X322
7. X321

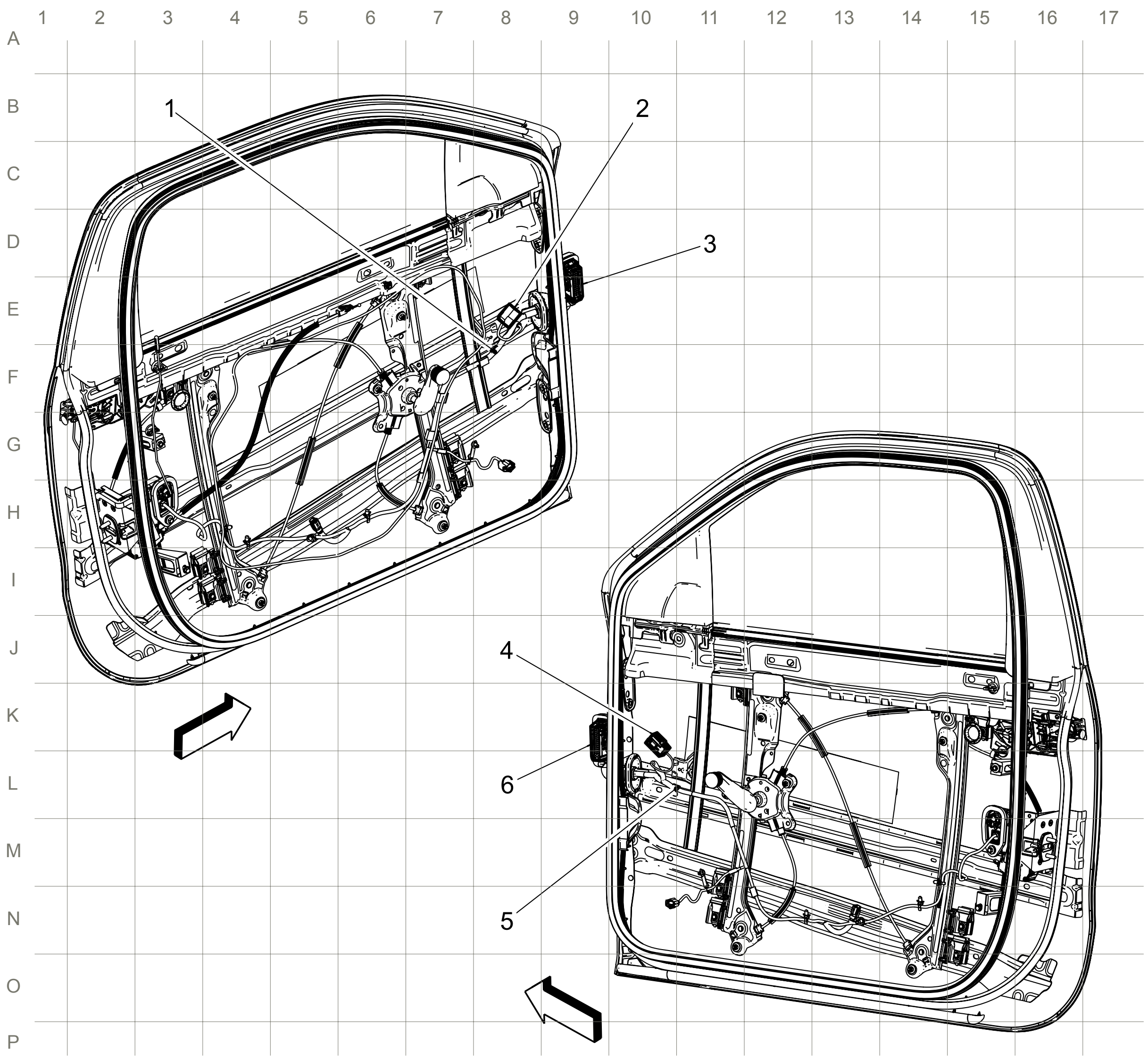
## Back of Passenger Seat Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2

**Items**

1. X322
2. X321

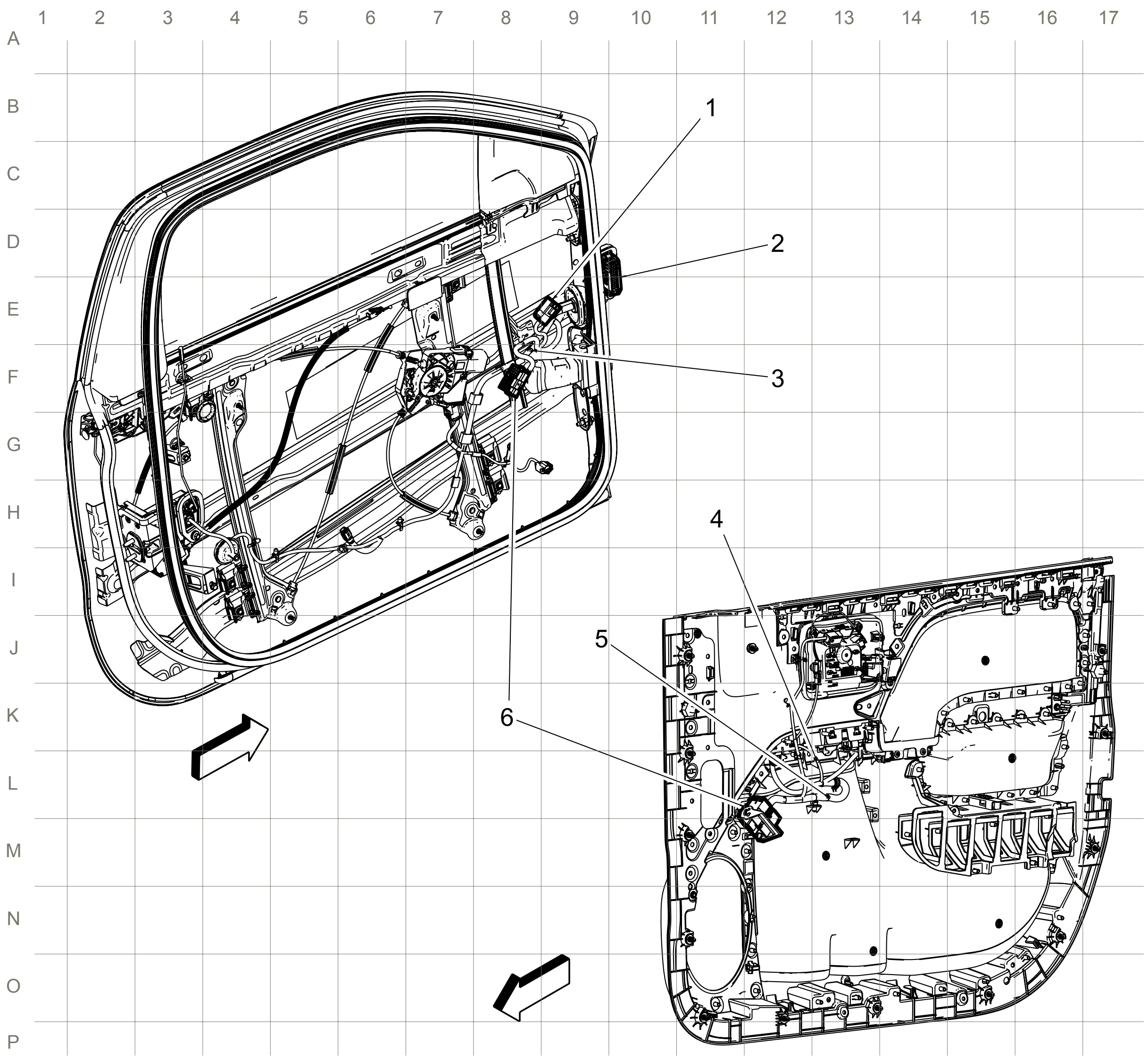
## Doors (Regular Cab with Manual Windows) Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
6
5

**Items**

1. J515
2. X506 (without A31)
3. X500
4. X606 (without A31)
5. J615
6. X600

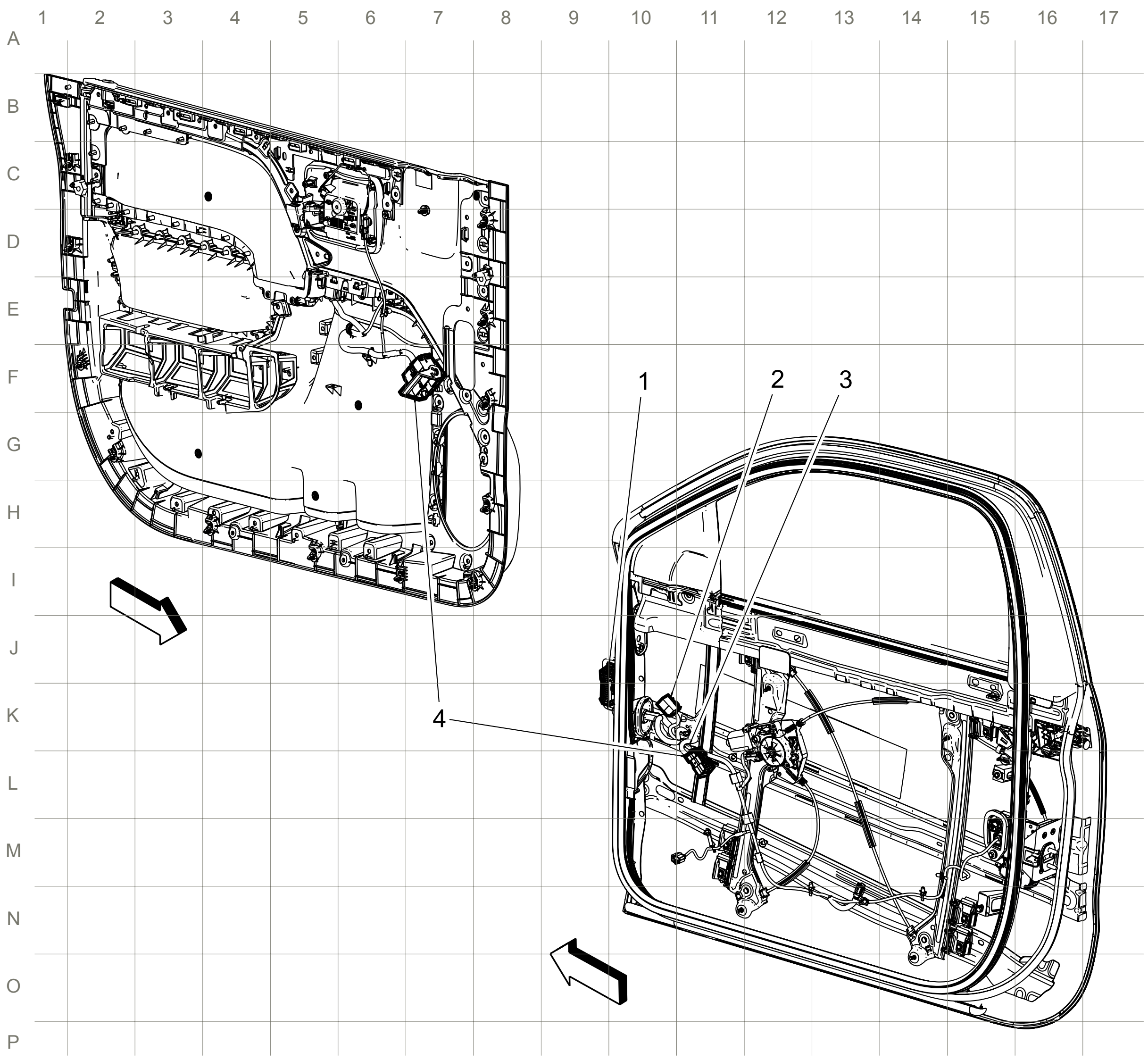
## Driver Door Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6

**Items**

1. X510 (DL3, DL8, DPN or DQS)
2. X500
3. J550
4. J515
5. J519
6. X505 (A31)

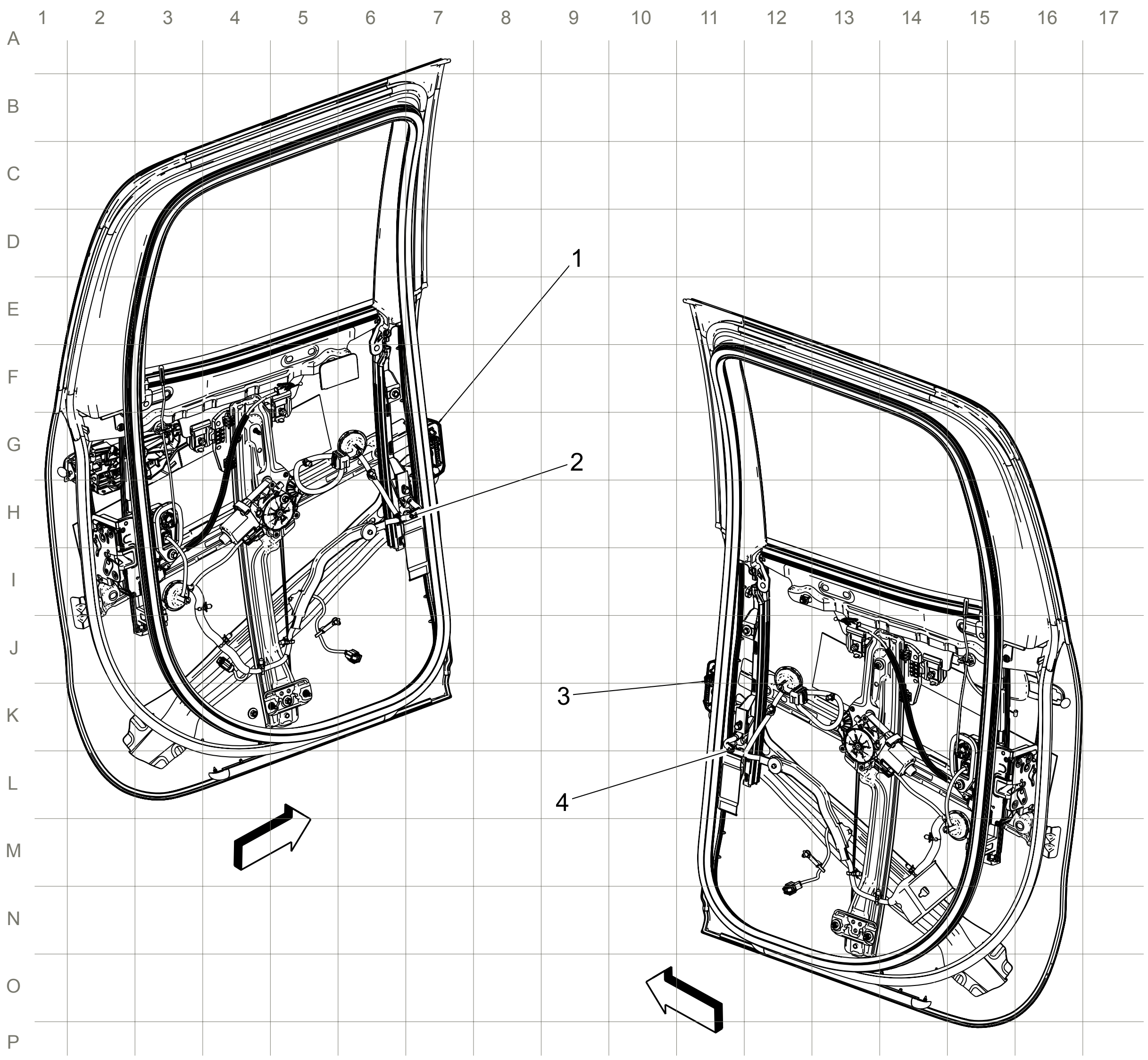
## Passenger Door Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4

**Items**

1. X600
2. X610 (DL3, DL8, DPN or DQS)
3. J615
4. X605 (A31)

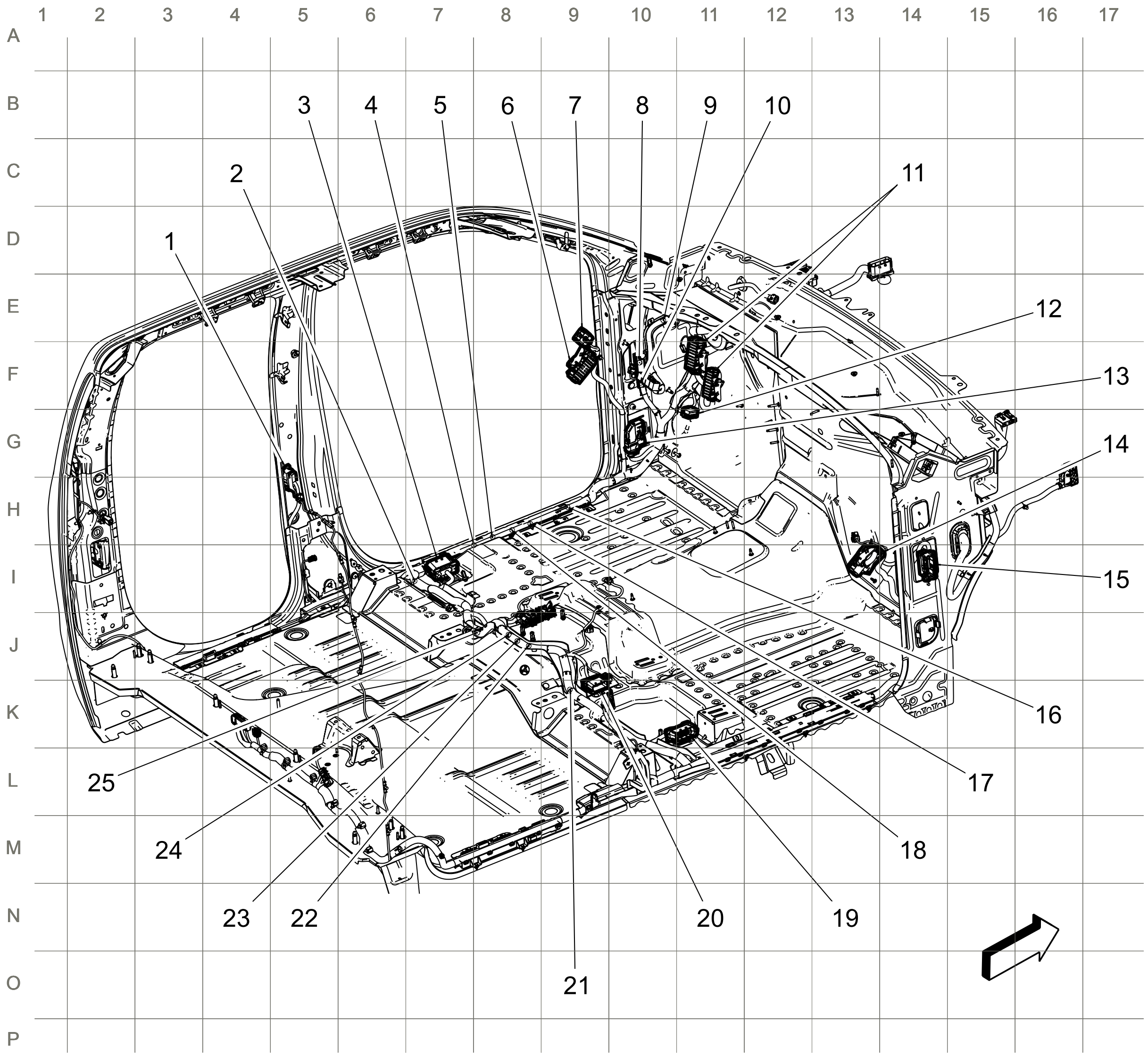
## Rear Doors Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4

**Items**

1. X700 (Extended or Crew Cab)
2. J715
3. X800 (Extended or Crew Cab)
4. J815

## Passenger Compartment Left Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25

**Items**

1. X700 (Extended or Crew Cab)
2. J331
3. X310
4. J305
5. J306
6. X51L Fuse Block - Instrument Panel Left
7. X206
8. J201
9. J380
10. J202
11. X61A Junction Block - Instrument Panel (except E29)

11. X61A Junction Block - Instrument Panel (except L29)

12. X315

13. X225

14. X51R Fuse Block - Instrument Panel Right

15. X600

16. J307

17. J308

18. J309

19. X320

20. X314 (except D07)

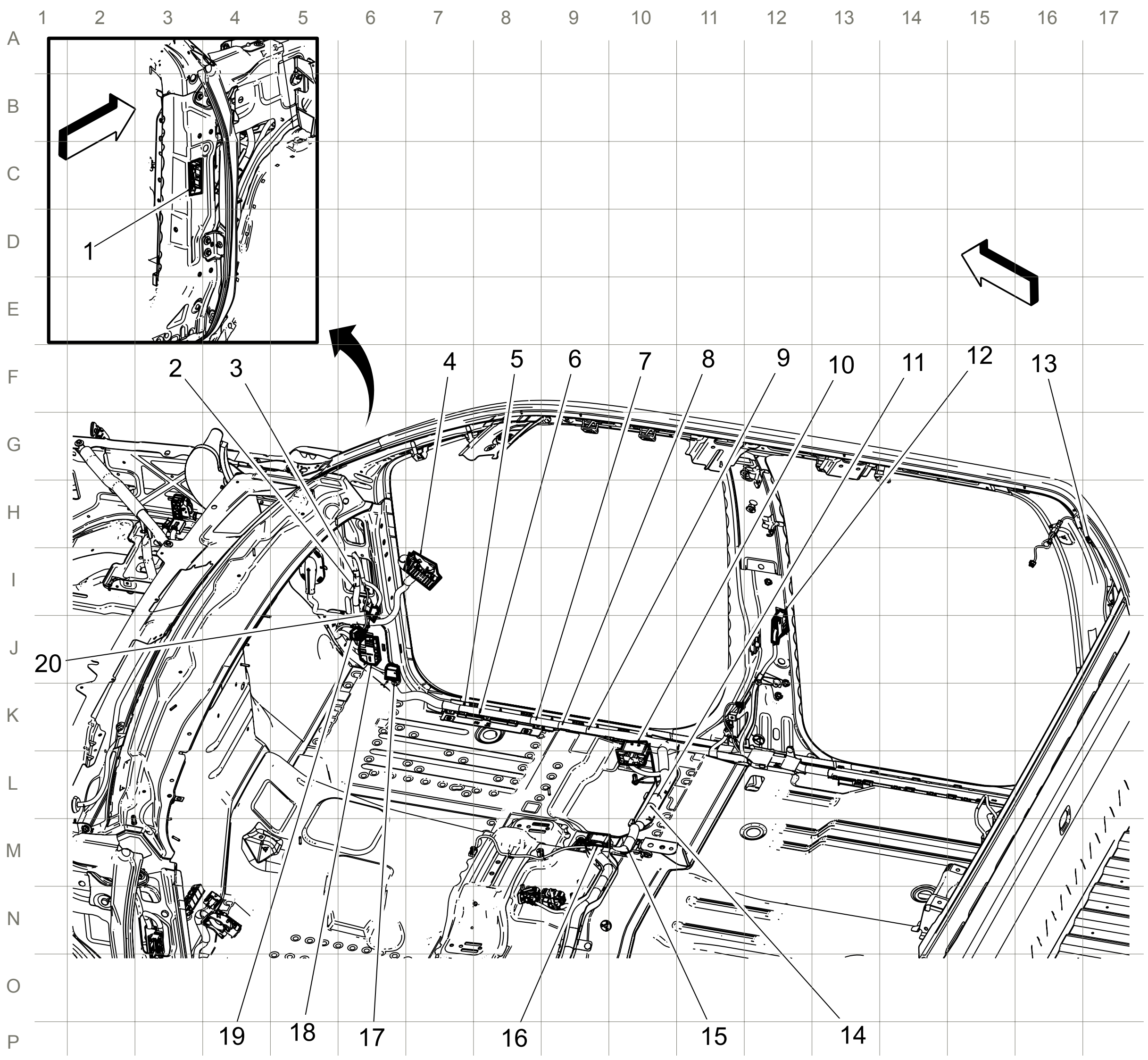
21. J379

22. J383

23. J382

24. J361

25. J384

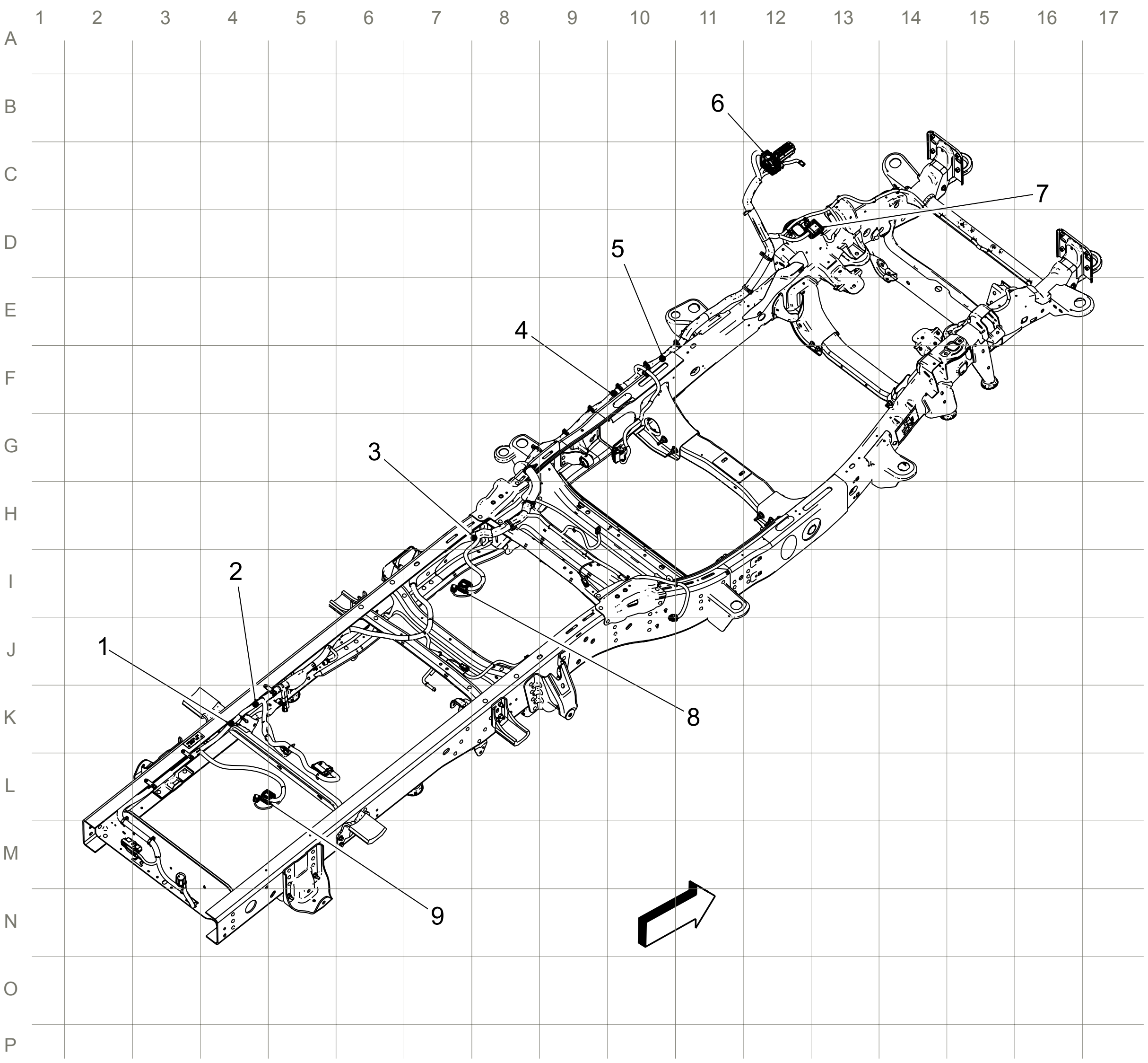

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17
A B C D E F G H I J K L M N O P

**Items**

1. X600
2. J298
3. J299
4. X51R Fuse Block - Instrument Panel Right
5. J367
6. J365
7. J362
8. J367
9. J360
10. X310
11. J372

11. J372
12. X800 (Extended or Crew Cab)
13. X390
14. J260
15. J350
16. X314 (except D07)
17. JX300
18. X275
19. X216
20. X217

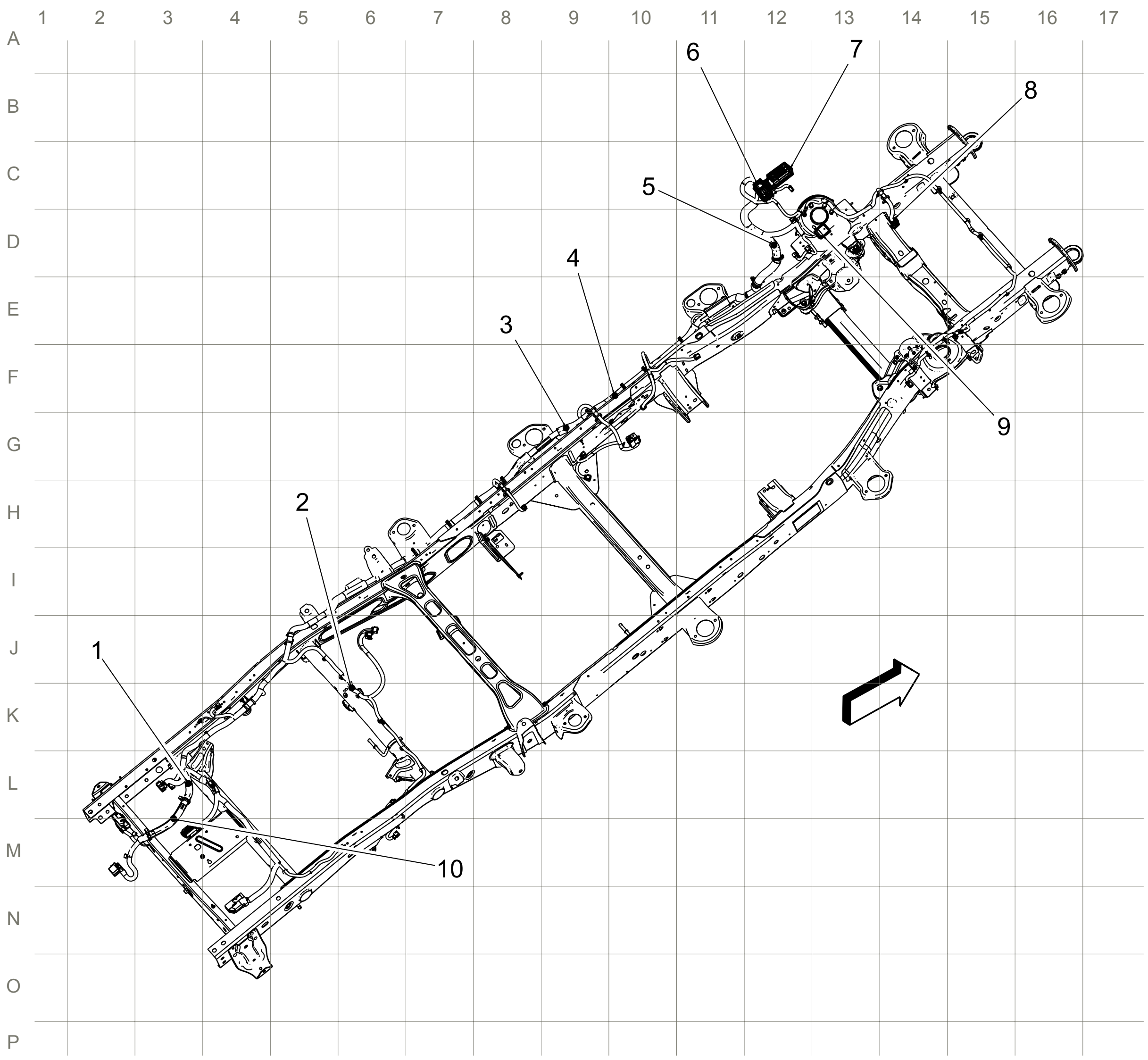
## Chassis Cab Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
6
7
5
4
3
2
1
8
9

**Items**

1. J451
2. J450
3. J375
4. J356
5. J355
6. X138
7. X125
8. X350 (LC8)
9. X351 (U42)

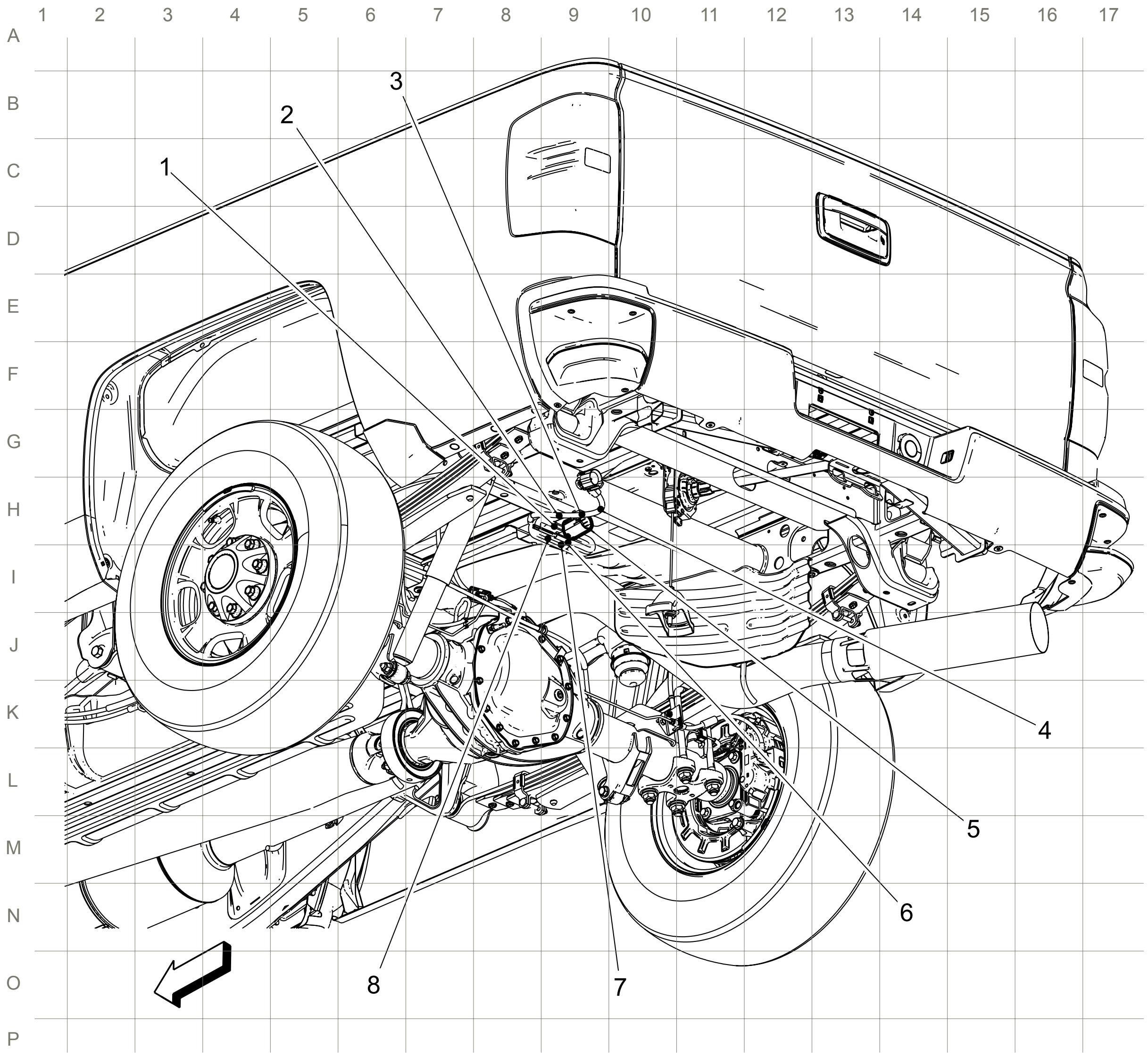
# Chassis Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
6
7
8
5
4
3
9
2
1
10

**Items**

1. J451
2. J375
3. J356
4. J355
5. J191
6. X138
7. X50A Fuse Block - Underhood
8. X134 (1500)
9. X125
10. J450

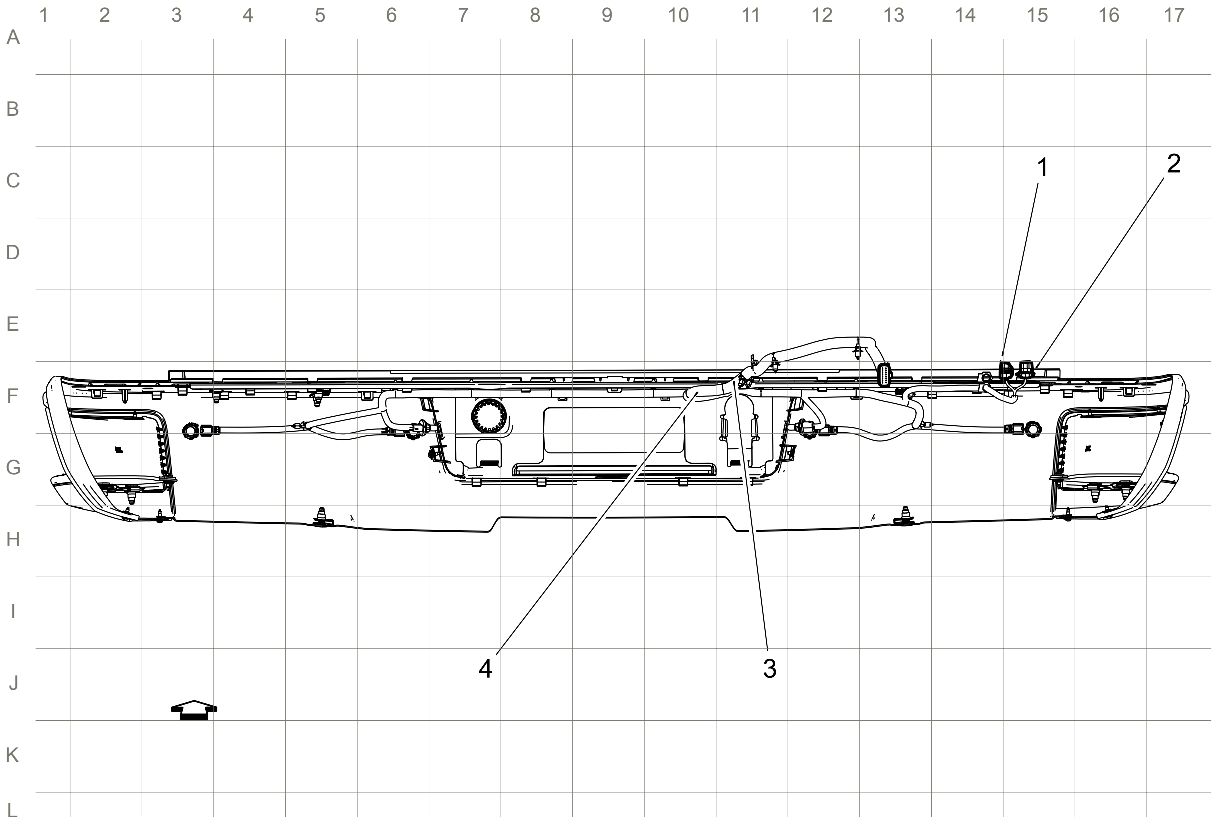
## Chassis Jumper Harness Routing (UY2)


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
M
N
O
P
3
2
1
4
5
6
8
7

**Items**

1. J905
2. J907
3. J903
4. J906
5. X950 (8S3 or UY2)
6. J904
7. J902
8. J901

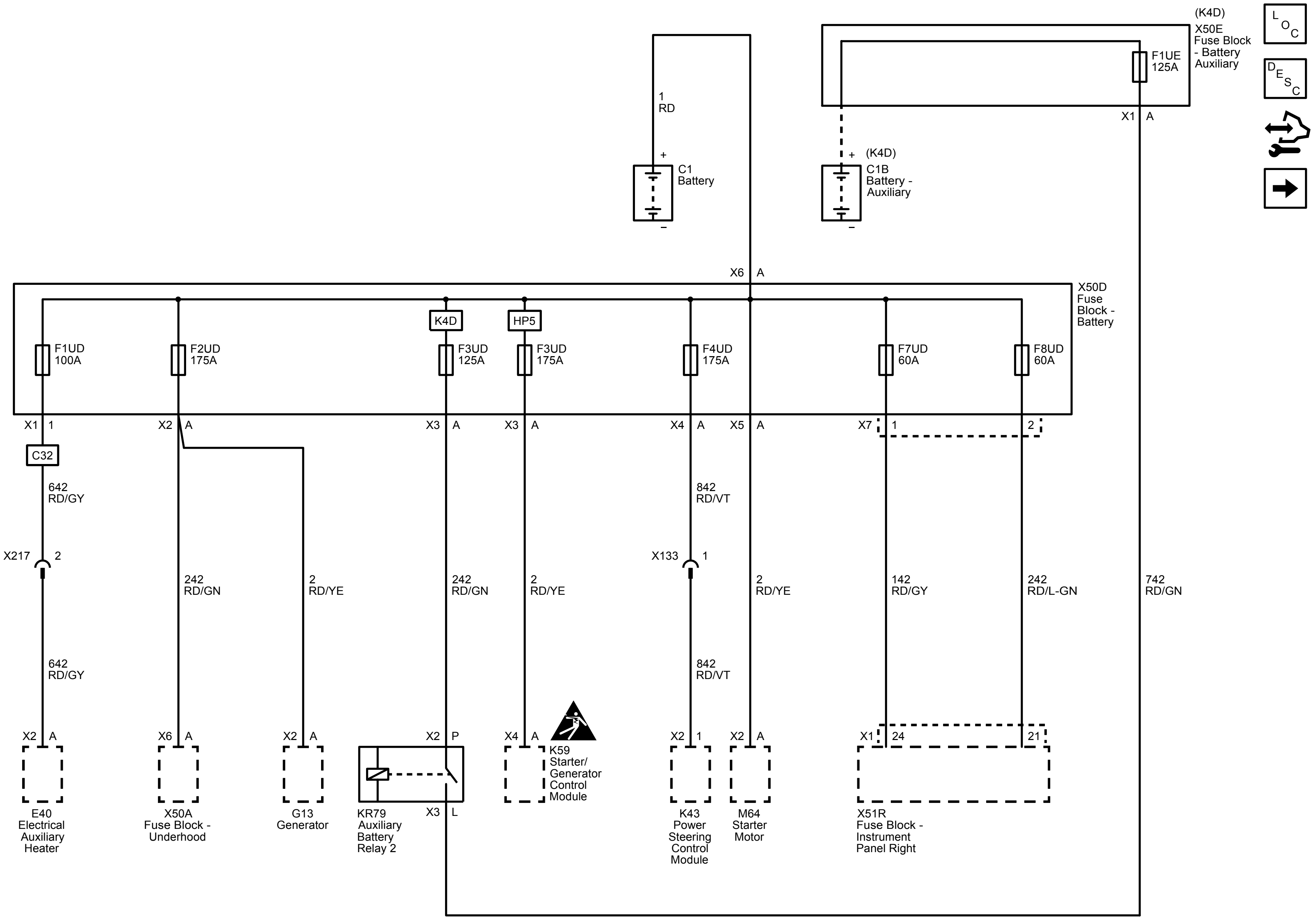
## Rear Bumper Harness Routing


1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
A
B
C
D
E
F
G
H
I
J
K
L
1
2
4
3

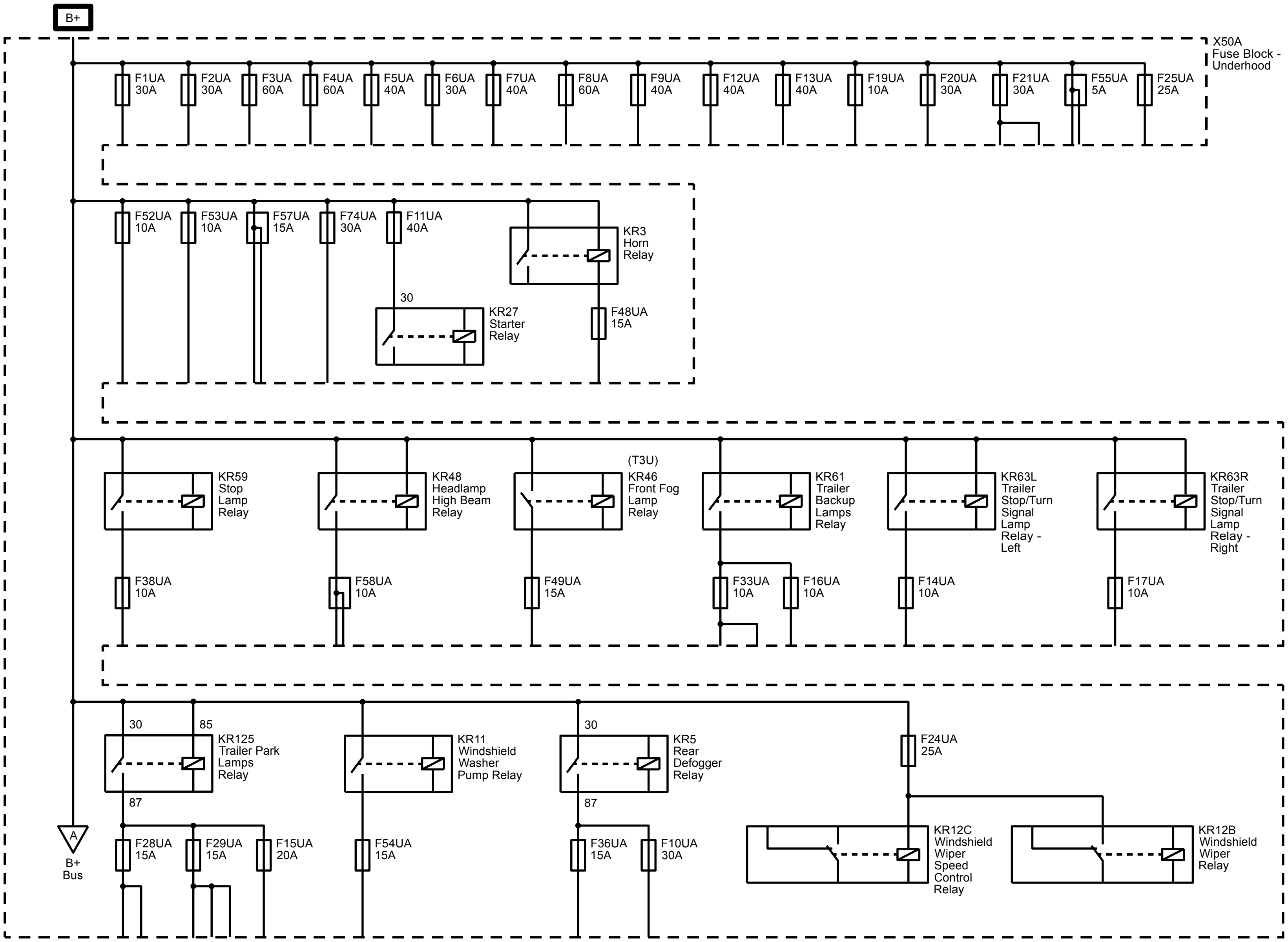
**Items**

1. X417
2. X416
3. J490
4. J495

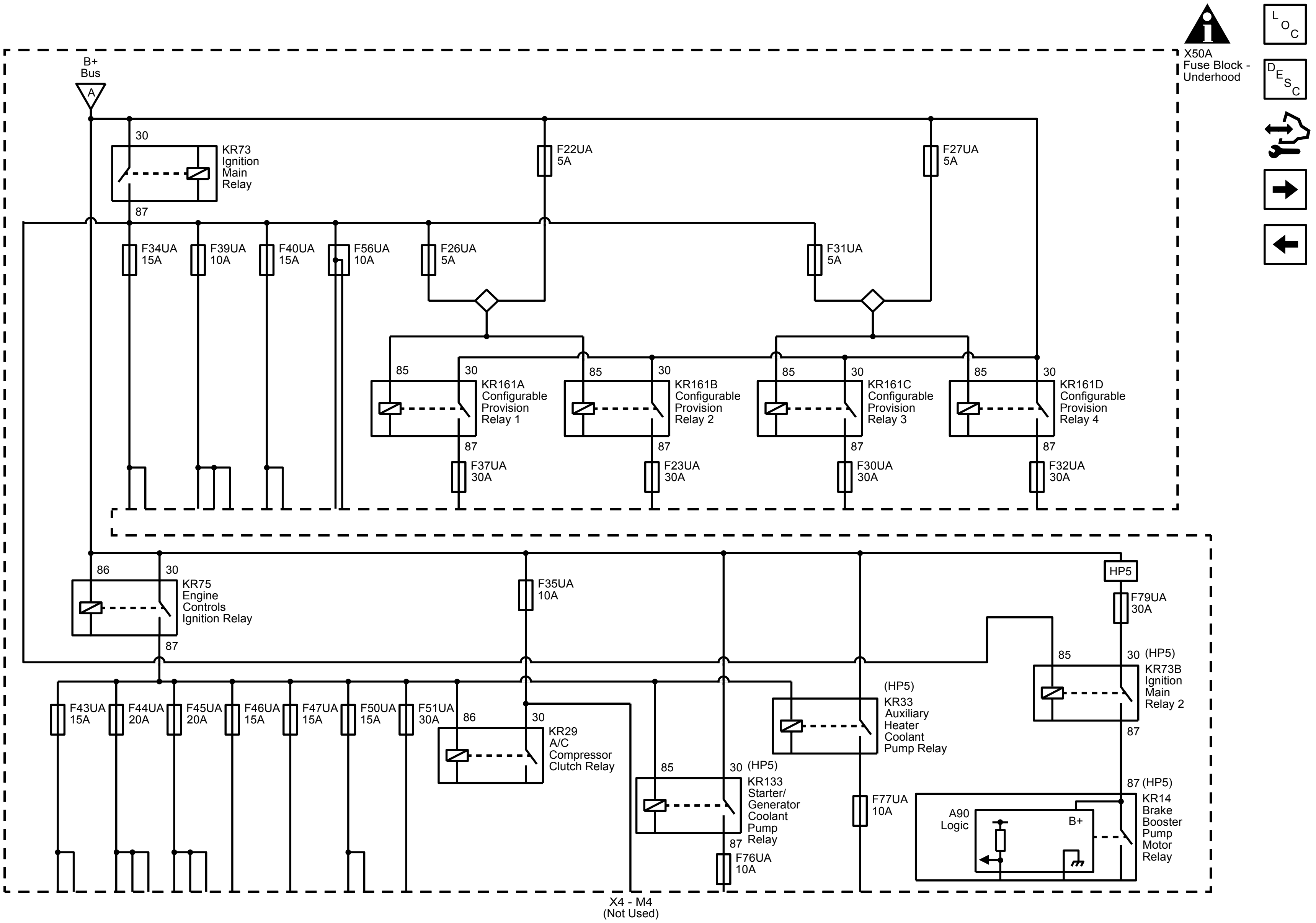
## X50D Fuse Block - Battery and X50E Fuse Block - Battery Auxiliary (1500)


(K4D)
X50E
Fuse Block
- Battery
Auxiliary
F1UE
125A
X1 A
L O C
D E S C
1
RD
+
C1
Battery
−
+ (K4D)
C1B
Battery -
Auxiliary
−
X6 A
X50D
Fuse
Block -
Battery
K4D
HP5
F1UD
100A
F2UD
175A
F3UD
125A
F3UD
175A
F4UD
175A
F7UD
60A
F8UD
60A
X1 1
X2 A
X3 A
X3 A
X4 A
X5 A
X7 1
2
C32
642
RD/GY
842
RD/VT
X217 2
X133 1
242
RD/GN
2
RD/YE
242
RD/GN
2
RD/YE
2
RD/YE
142
RD/GY
242
RD/L-GN
742
RD/GN
642
RD/GY
842
RD/VT
X2 A
X6 A
X2 A
X2 P
X4 A
X2 1
X2 A
X1 24
21
E40
Electrical
Auxiliary
Heater
X50A
Fuse Block -
Underhood
G13
Generator
KR79
Auxiliary
Battery
Relay 2
X3 L
K59
Starter/
Generator
Control
Module
K43
Power
Steering
Control
Module
M64
Starter
Motor
X51R
Fuse Block -
Instrument
Panel Right

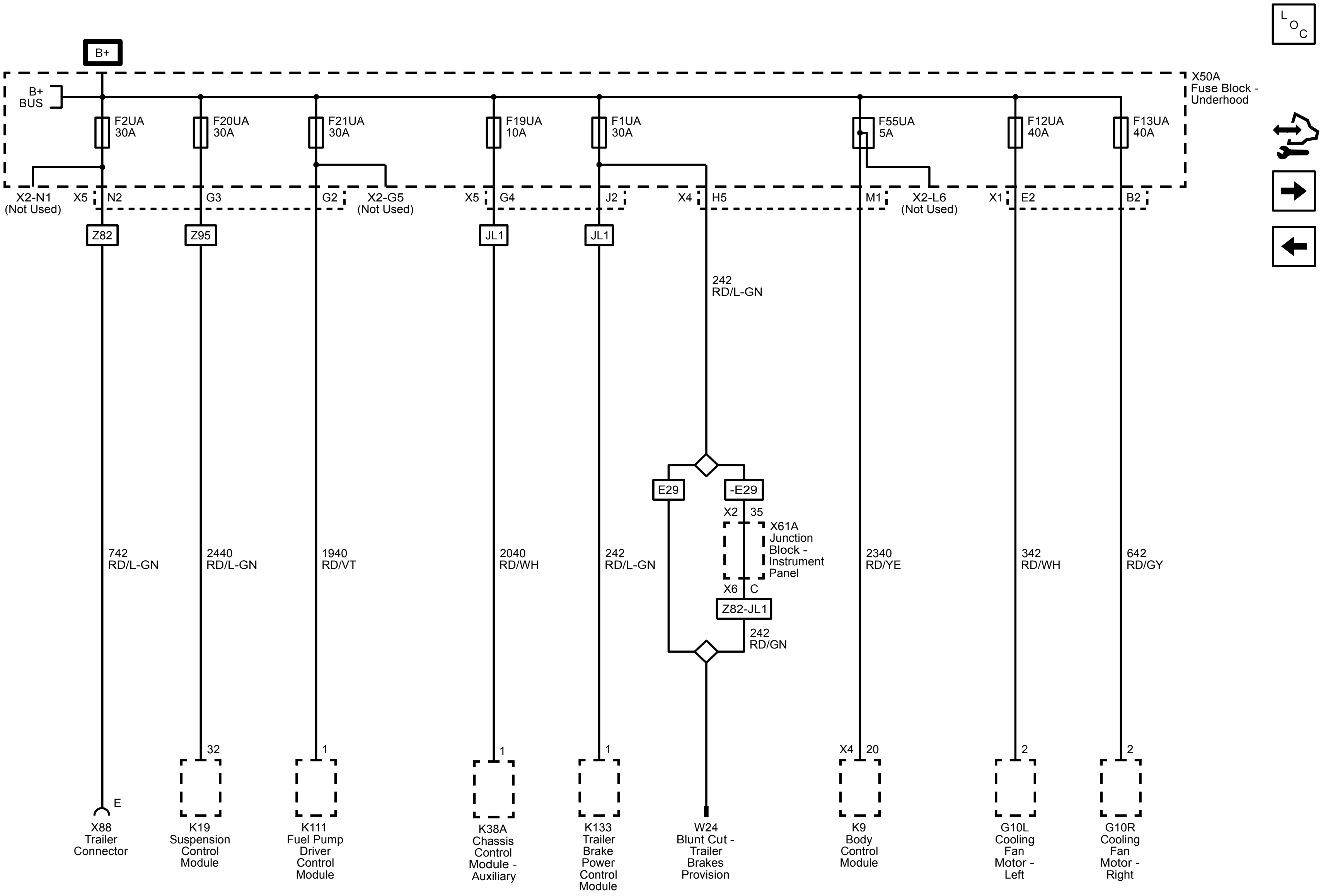
# B+ Bus X50A Fuse Block - Underhood 1 of 2 (1500)



B+
X50A Fuse Block - Underhood
F1UA 30A
F2UA 30A
F3UA 60A
F4UA 60A
F5UA 40A
F6UA 30A
F7UA 40A
F8UA 60A
F9UA 40A
F12UA 40A
F13UA 40A
F19UA 10A
F20UA 30A
F21UA 30A
F55UA 5A
F25UA 25A
F52UA 10A
F53UA 10A
F57UA 15A
F74UA 30A
F11UA 40A
KR3 Horn Relay
F48UA 15A
30
KR27 Starter Relay
KR59 Stop Lamp Relay
KR48 Headlamp High Beam Relay
(T3U)
KR46 Front Fog Lamp Relay
KR61 Trailer Backup Lamps Relay
KR63L Trailer Stop/Turn Signal Lamp Relay - Left
KR63R Trailer Stop/Turn Signal Lamp Relay - Right
F38UA 10A
F58UA 10A
F49UA 15A
F33UA 10A
F16UA 10A
F14UA 10A
F17UA 10A
30
85
KR125 Trailer Park Lamps Relay
87
KR11 Windshield Washer Pump Relay
30
KR5 Rear Defogger Relay
87
F24UA 25A
A
B+ Bus
F28UA 15A
F29UA 15A
F15UA 20A
F54UA 15A
F36UA 15A
F10UA 30A
KR12C Windshield Wiper Speed Control Relay
KR12B Windshield Wiper Relay

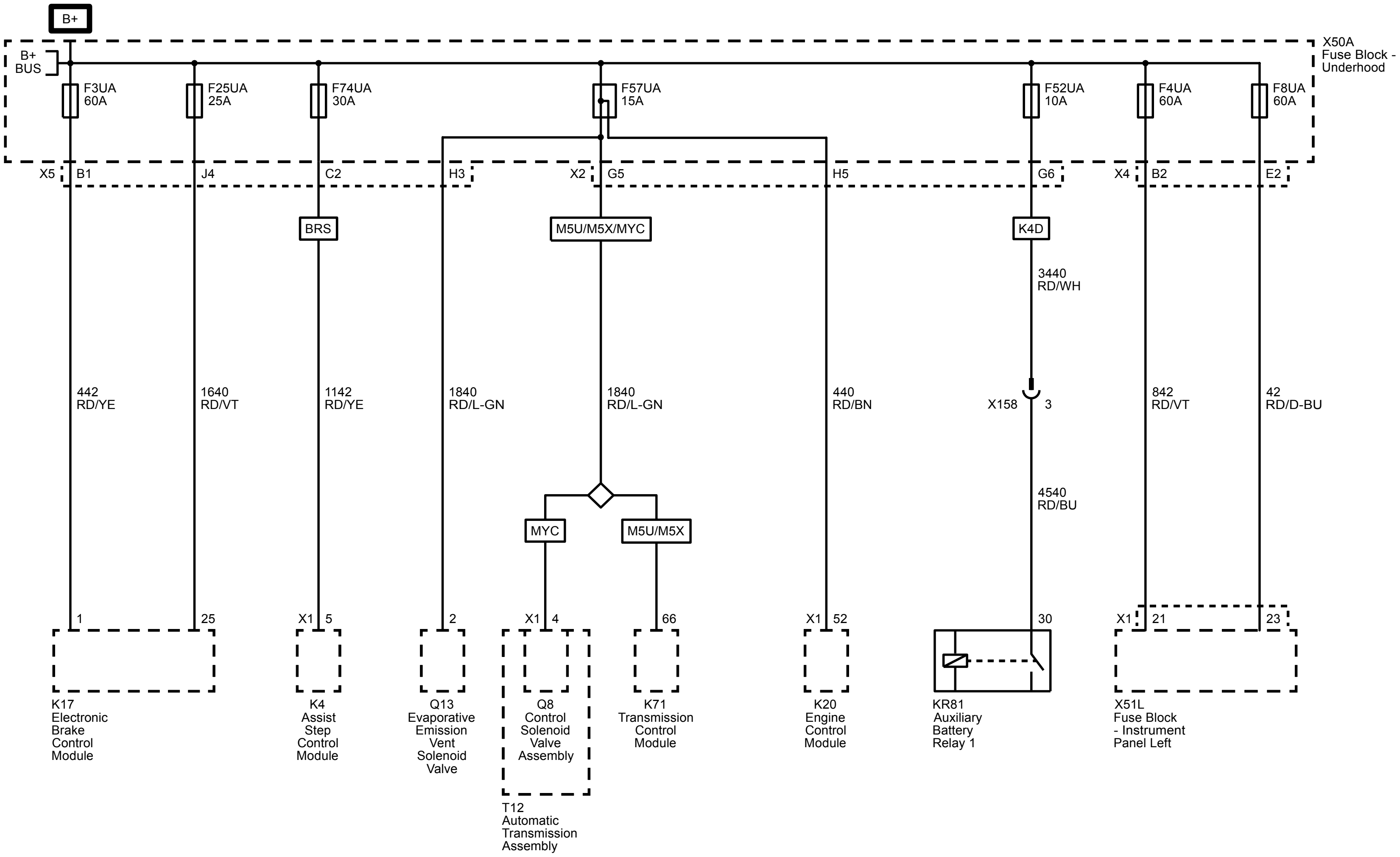

X50A
Fuse Block -
Underhood
L O C
D E S C
B+
Bus
A
30
KR73
Ignition
Main
Relay
87
F22UA
5A
F27UA
5A
F34UA
15A
F39UA
10A
F40UA
15A
F56UA
10A
F26UA
5A
F31UA
5A
85
30
KR161A
Configurable
Provision
Relay 1
87
F37UA
30A
KR161B
Configurable
Provision
Relay 2
F23UA
30A
KR161C
Configurable
Provision
Relay 3
F30UA
30A
KR161D
Configurable
Provision
Relay 4
F32UA
30A
86
KR75
Engine
Controls
Ignition Relay
F35UA
10A
HP5
F79UA
30A
(HP5)
KR73B
Ignition
Main
Relay 2
F43UA
15A
F44UA
20A
F45UA
20A
F46UA
15A
F47UA
15A
F50UA
15A
F51UA
30A
KR29
A/C
Compressor
Clutch Relay
KR133
Starter/
Generator
Coolant
Pump
Relay
F76UA
10A
KR33
Auxiliary
Heater
Coolant
Pump Relay
F77UA
10A
A90
Logic
B+
KR14
Brake
Booster
Pump
Motor
Relay
X4 - M4
(Not Used)

# F1UA, F2UA, F12UA, F13UA, F19UA, F20UA, F21UA and F55UA Fuses (1500)



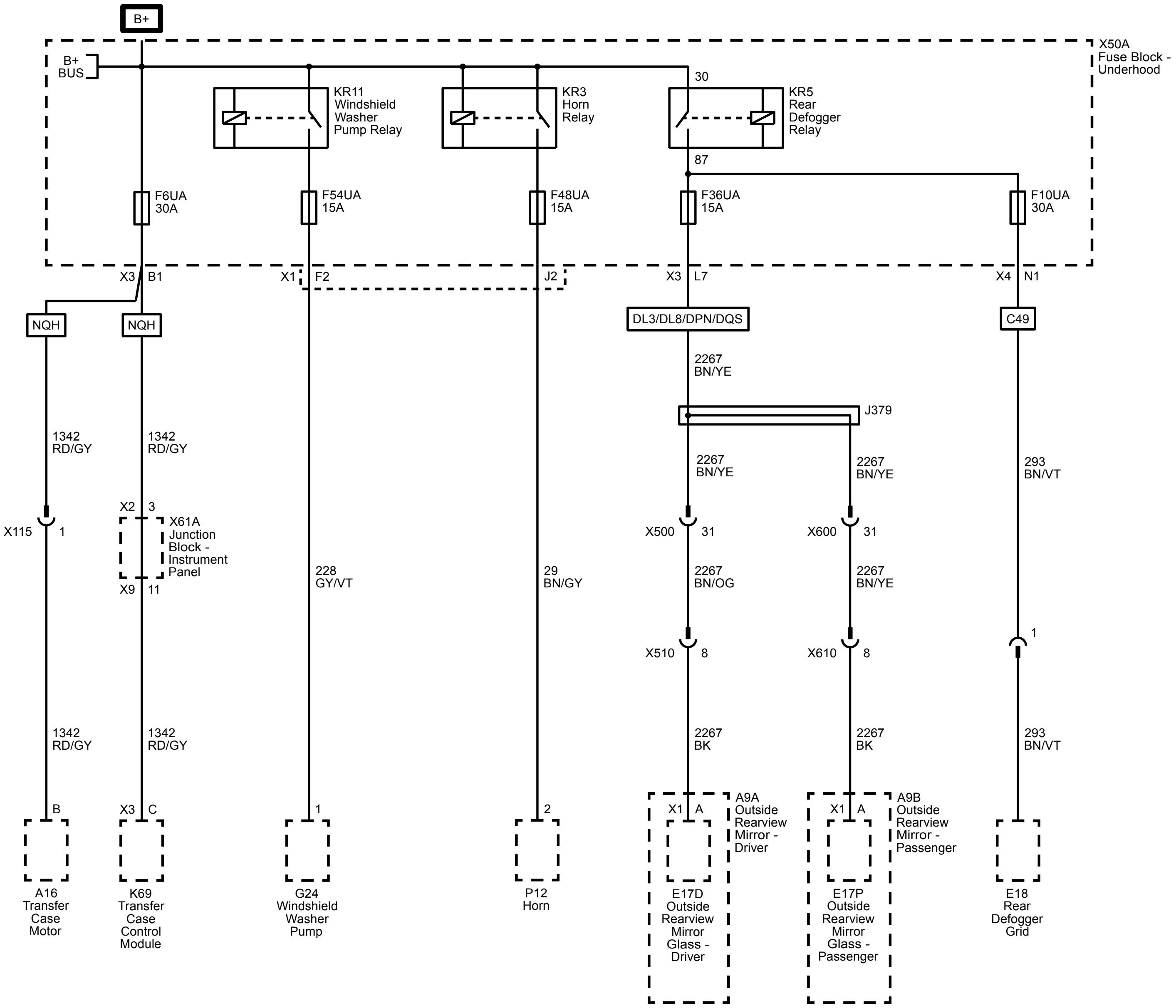
LOC
B+
X50A
Fuse Block - Underhood
B+ BUS
F2UA 30A
F20UA 30A
F21UA 30A
F19UA 10A
F1UA 30A
F55UA 5A
F12UA 40A
F13UA 40A
X2-N1 (Not Used)
X5
N2
G3
G2
X2-G5 (Not Used)
X5
G4
J2
X4
H5
M1
X2-L6 (Not Used)
X1
E2
B2
Z82
Z95
JL1
JL1
242 RD/L-GN
E29
-E29
X2
35
X61A Junction Block - Instrument Panel
X6
C
Z82-JL1
242 RD/GN
742 RD/L-GN
2440 RD/L-GN
1940 RD/VT
2040 RD/WH
242 RD/L-GN
2340 RD/YE
342 RD/WH
642 RD/GY
32
1
1
1
X4
20
2
2
E
X88 Trailer Connector
K19 Suspension Control Module
K111 Fuel Pump Driver Control Module
K38A Chassis Control Module - Auxiliary
K133 Trailer Brake Power Control Module
W24 Blunt Cut - Trailer Brakes Provision
K9 Body Control Module
G10L Cooling Fan Motor - Left
G10R Cooling Fan Motor - Right

# F3UA, F4UA, F8UA, F25UA, F52UA, F57UA, and F74UA Fuses (1500)

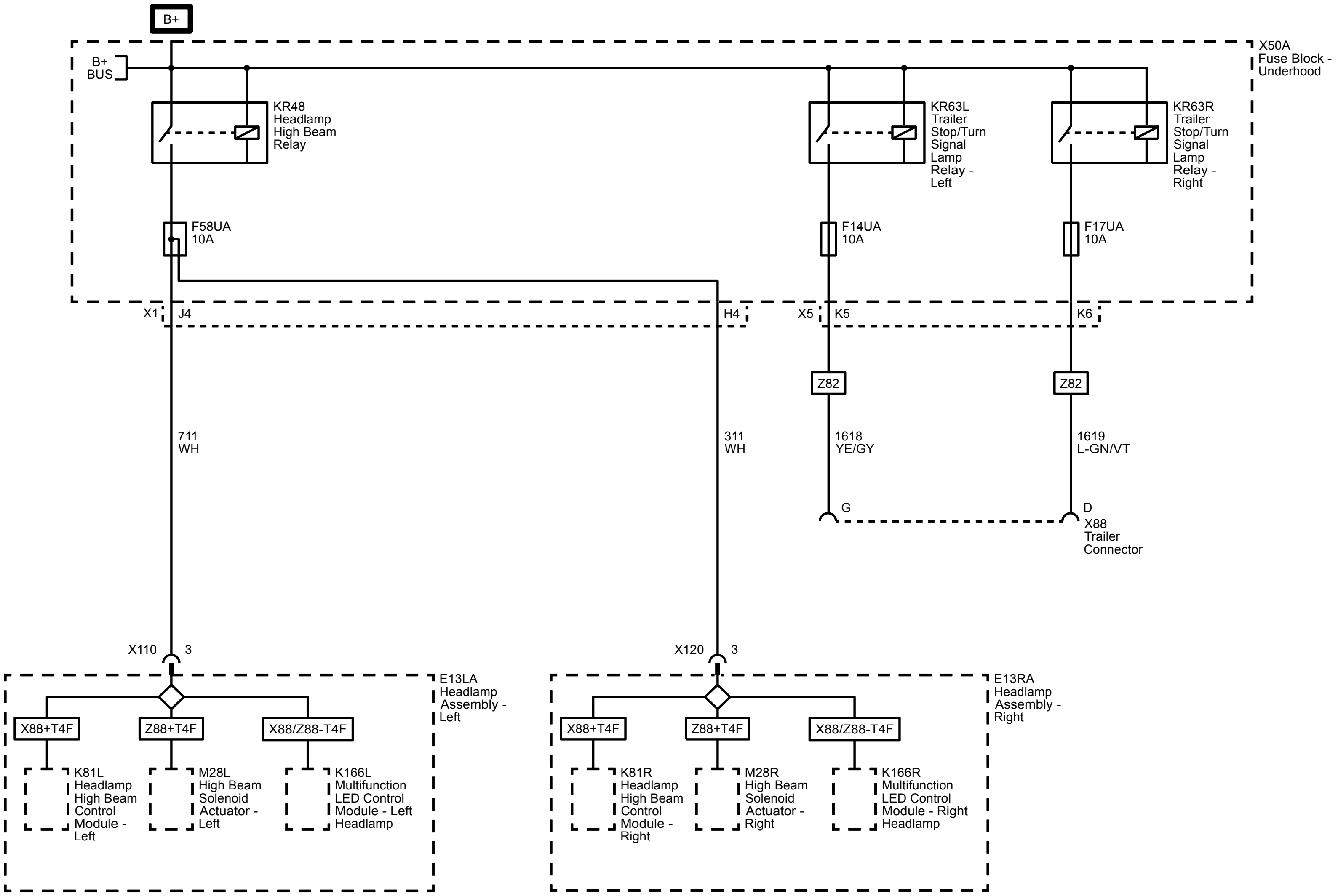


B+
B+ BUS
X50A Fuse Block - Underhood
F3UA 60A
F25UA 25A
F74UA 30A
F57UA 15A
F52UA 10A
F4UA 60A
F8UA 60A
X5
B1
J4
C2
H3
X2
G5
H5
G6
X4
B2
E2
BRS
M5U/M5X/MYC
K4D
3440 RD/WH
442 RD/YE
1640 RD/VT
1142 RD/YE
1840 RD/L-GN
1840 RD/L-GN
440 RD/BN
X158
3
842 RD/VT
42 RD/D-BU
4540 RD/BU
MYC
M5U/M5X
1
25
X1
5
2
X1
4
66
X1
52
30
X1
21
23
K17 Electronic Brake Control Module
K4 Assist Step Control Module
Q13 Evaporative Emission Vent Solenoid Valve
Q8 Control Solenoid Valve Assembly
K71 Transmission Control Module
K20 Engine Control Module
KR81 Auxiliary Battery Relay 1
X51L Fuse Block - Instrument Panel Left
T12 Automatic Transmission Assembly

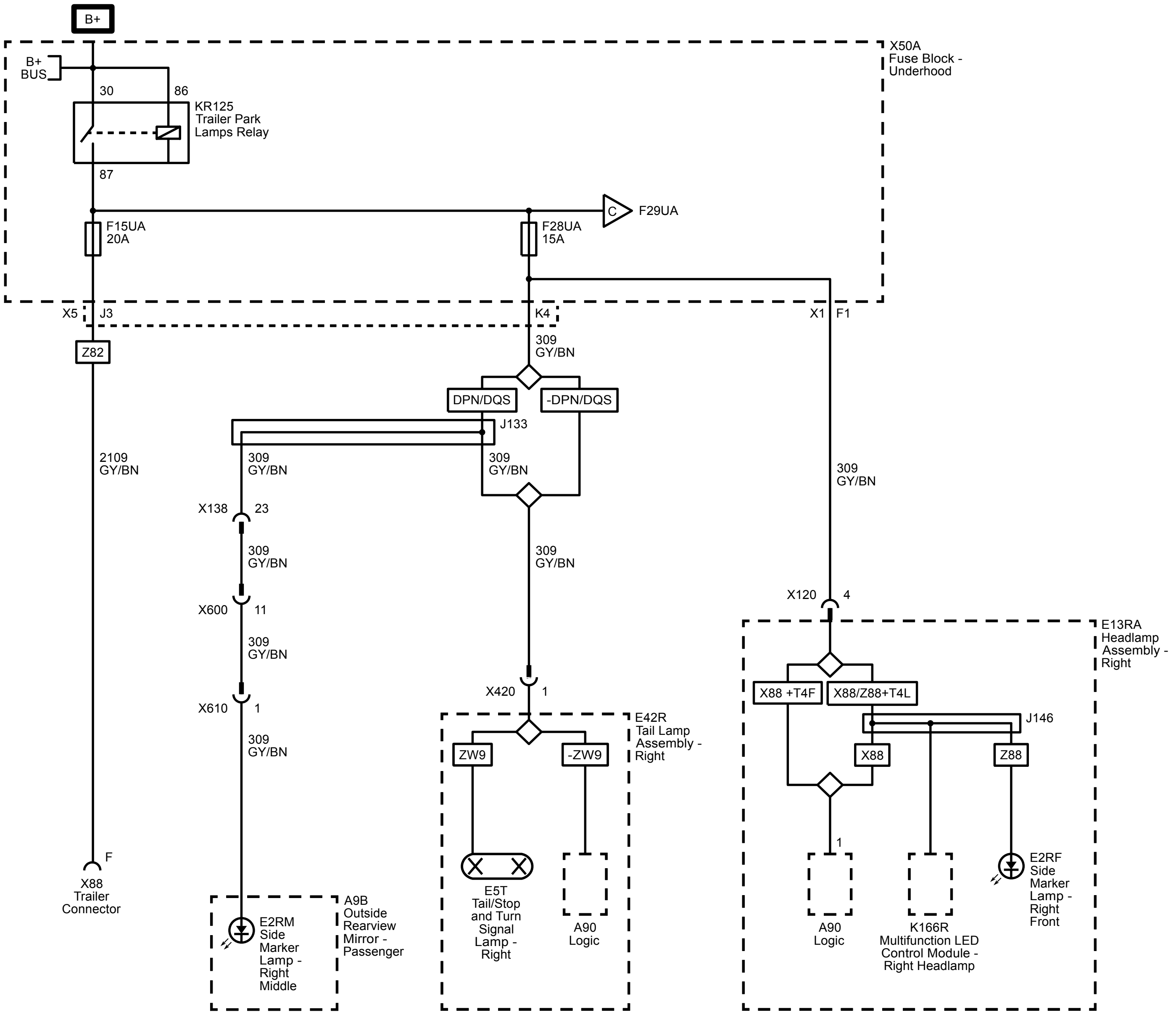
# F6UA, F10UA, F36UA, F48UA and F54UA Fuses (1500)


B+
B+ BUS
X50A Fuse Block - Underhood
KR11 Windshield Washer Pump Relay
KR3 Horn Relay
KR5 Rear Defogger Relay
30
87
F6UA 30A
F54UA 15A
F48UA 15A
F36UA 15A
F10UA 30A
X3 B1
X1 F2
J2
X3 L7
X4 N1
NQH
NQH
DL3/DL8/DPN/DQS
C49
2267 BN/YE
J379
1342 RD/GY
1342 RD/GY
2267 BN/YE
2267 BN/YE
293 BN/VT
X2 3
X61A Junction Block - Instrument Panel
X9 11
X115 1
X500 31
X600 31
228 GY/VT
29 BN/GY
2267 BN/OG
2267 BN/YE
X510 8
X610 8
1
1342 RD/GY
1342 RD/GY
2267 BK
2267 BK
293 BN/VT
B
X3 C
1
2
X1 A
X1 A
A9A Outside Rearview Mirror - Driver
A9B Outside Rearview Mirror - Passenger
A16 Transfer Case Motor
K69 Transfer Case Control Module
G24 Windshield Washer Pump
P12 Horn
E17D Outside Rearview Mirror Glass - Driver
E17P Outside Rearview Mirror Glass - Passenger
E18 Rear Defogger Grid

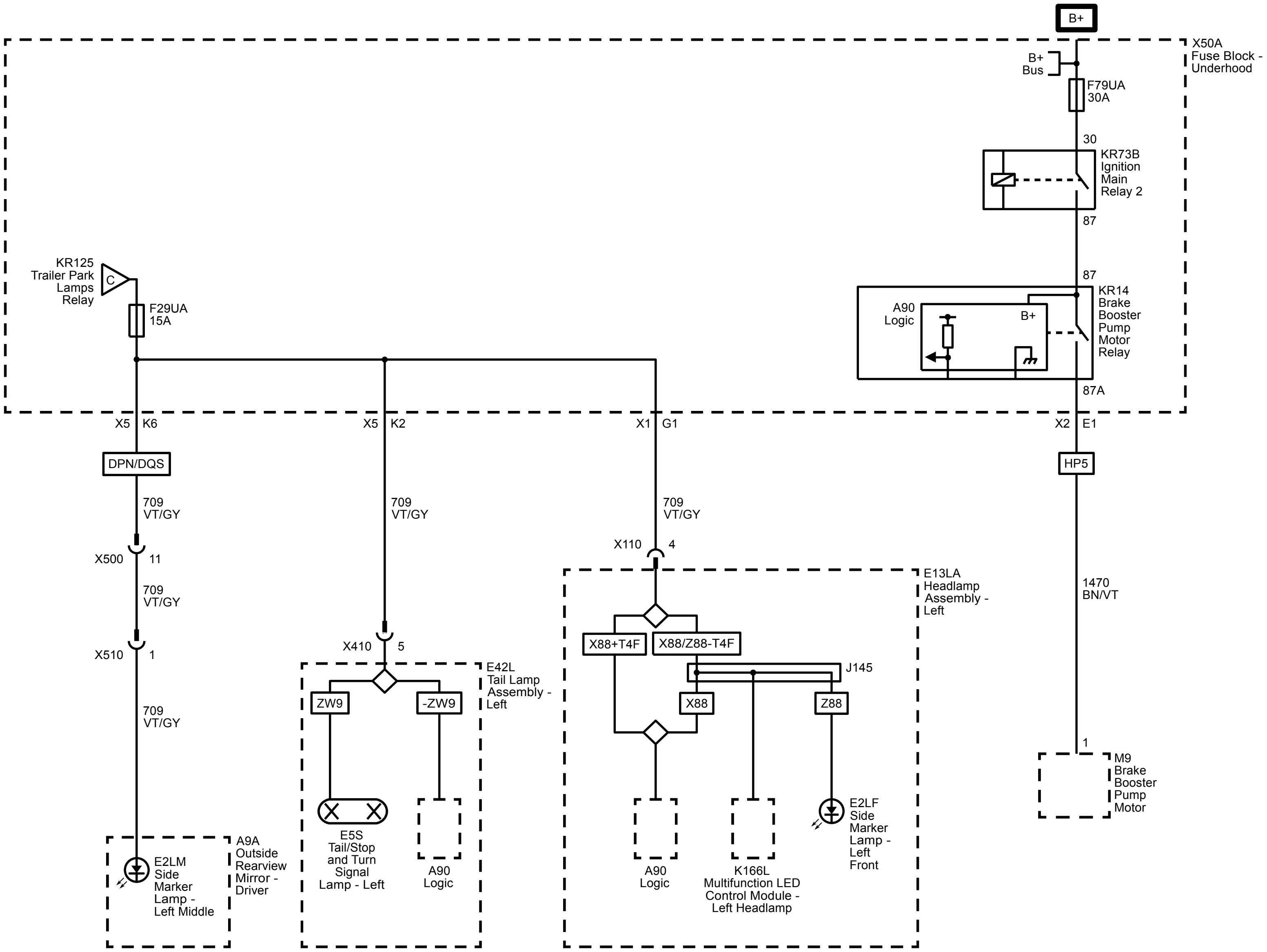
## F14UA, F17UA and F58UA Fuses (1500)


B+
B+ BUS
X50A Fuse Block - Underhood
KR48 Headlamp High Beam Relay
KR63L Trailer Stop/Turn Signal Lamp Relay - Left
KR63R Trailer Stop/Turn Signal Lamp Relay - Right
F58UA 10A
F14UA 10A
F17UA 10A
X1
J4
H4
X5
K5
K6
Z82
Z82
711 WH
311 WH
1618 YE/GY
1619 L-GN/VT
G
D
X88 Trailer Connector
X110
3
X120
3
E13LA Headlamp Assembly - Left
E13RA Headlamp Assembly - Right
X88+T4F
Z88+T4F
X88/Z88-T4F
K81L Headlamp High Beam Control Module - Left
M28L High Beam Solenoid Actuator - Left
K166L Multifunction LED Control Module - Left Headlamp
X88+T4F
Z88+T4F
X88/Z88-T4F
K81R Headlamp High Beam Control Module - Right
M28R High Beam Solenoid Actuator - Right
K166R Multifunction LED Control Module - Right Headlamp

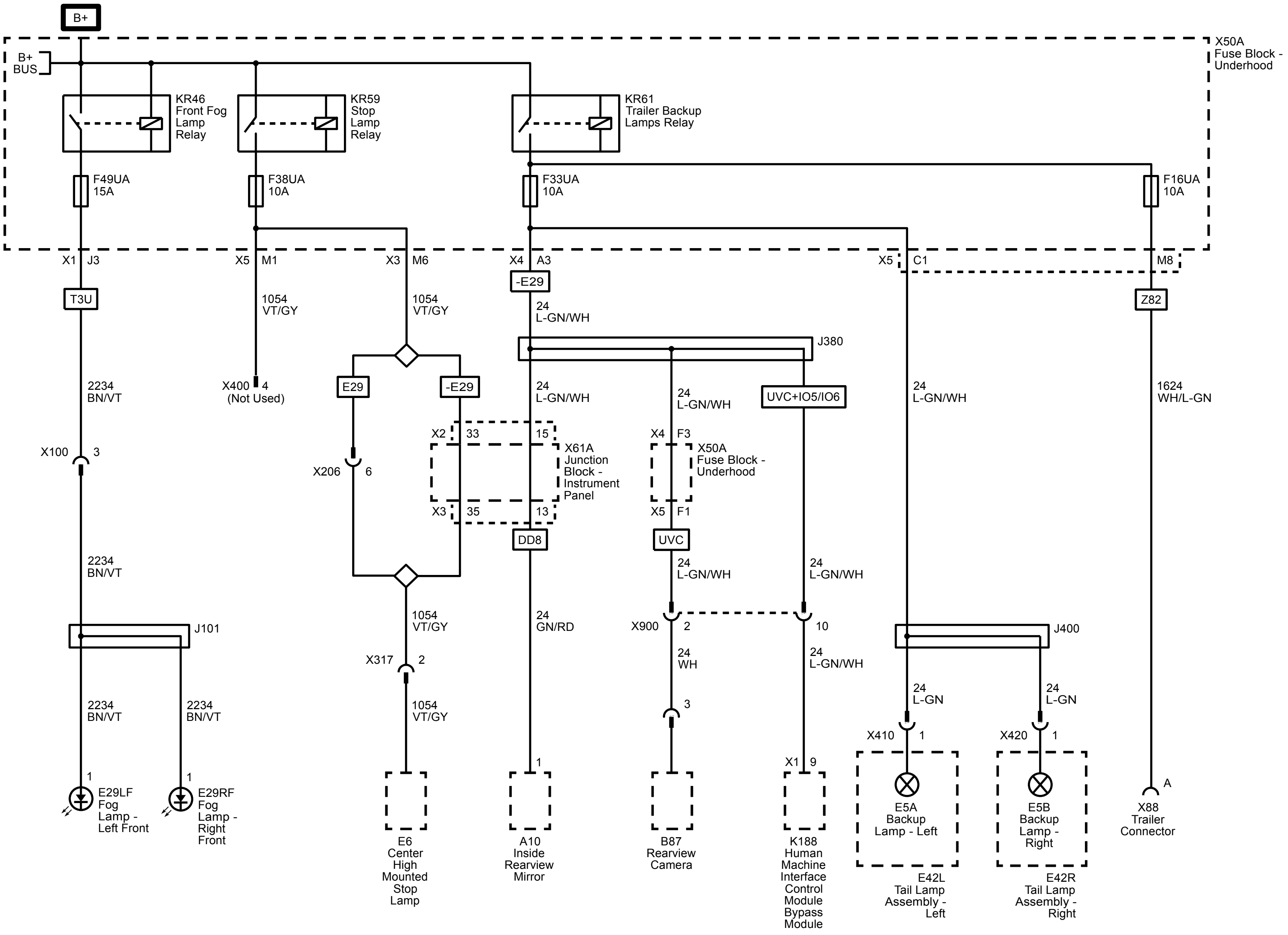
# F15UA and F28UA Fuses (1500)


B+
B+ BUS
30
86
KR125 Trailer Park Lamps Relay
87
X50A Fuse Block - Underhood
C
F29UA
F15UA 20A
F28UA 15A
X5
J3
K4
X1
F1
Z82
309 GY/BN
DPN/DQS
-DPN/DQS
J133
2109 GY/BN
309 GY/BN
309 GY/BN
309 GY/BN
X138
23
309 GY/BN
309 GY/BN
X600
11
309 GY/BN
X120
4
E13RA Headlamp Assembly - Right
X610
1
X420
1
X88 +T4F
X88/Z88+T4L
309 GY/BN
E42R Tail Lamp Assembly - Right
J146
ZW9
-ZW9
X88
Z88
F
X88 Trailer Connector
1
E2RF Side Marker Lamp - Right Front
A9B Outside Rearview Mirror - Passenger
E2RM Side Marker Lamp - Right Middle
E5T Tail/Stop and Turn Signal Lamp - Right
A90 Logic
A90 Logic
K166R Multifunction LED Control Module - Right Headlamp

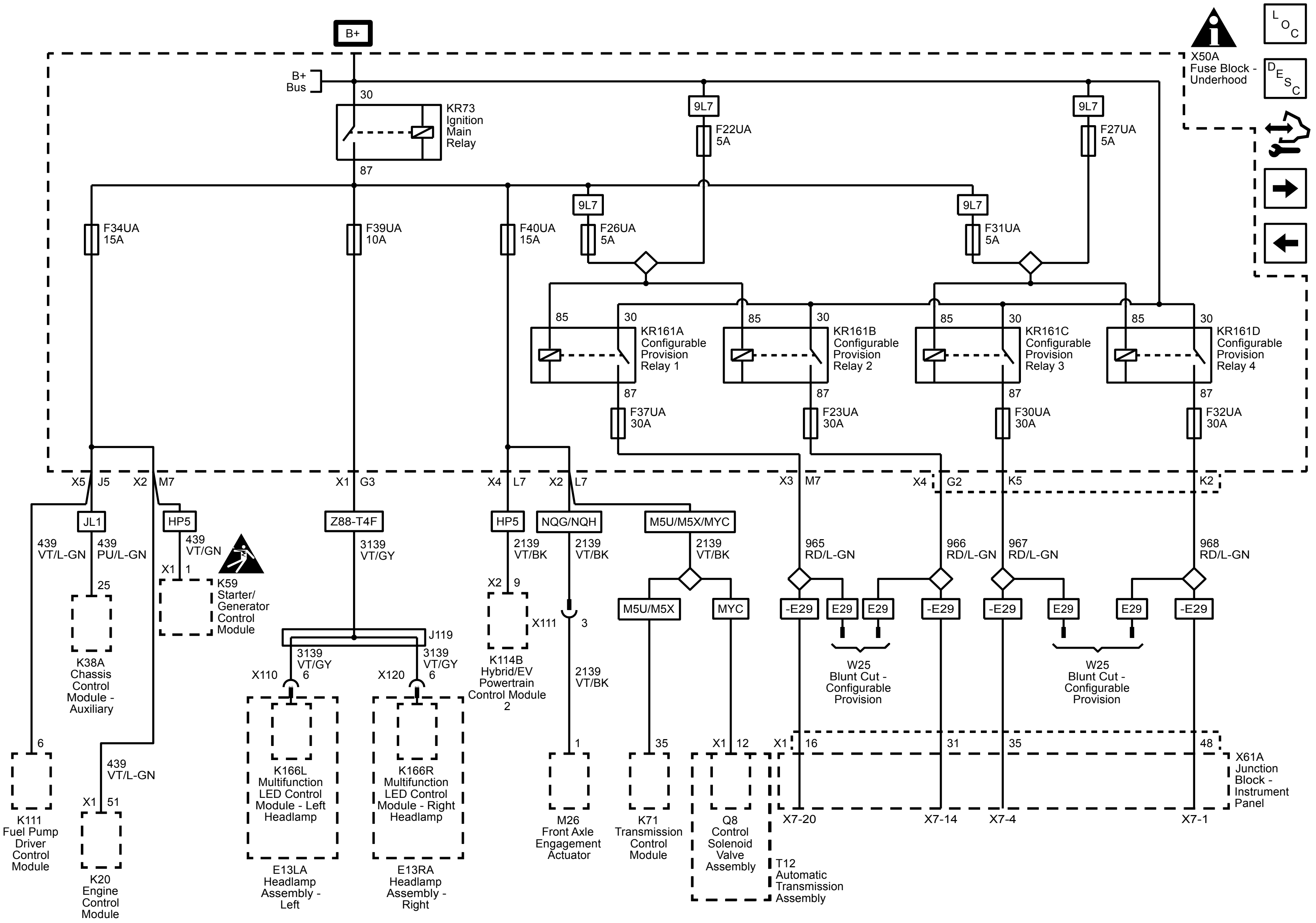
# F29UA Fuse (1500)


B+
B+ Bus
X50A Fuse Block - Underhood
F79UA 30A
30
KR73B Ignition Main Relay 2
87
87
KR14 Brake Booster Pump Motor Relay
A90 Logic
B+
87A
KR125 Trailer Park Lamps Relay
C
F29UA 15A
X5 K6
X5 K2
X1 G1
X2 E1
DPN/DQS
709 VT/GY
X500 11
709 VT/GY
X510 1
709 VT/GY
A9A Outside Rearview Mirror - Driver
E2LM Side Marker Lamp - Left Middle
709 VT/GY
X410 5
E42L Tail Lamp Assembly - Left
ZW9
-ZW9
E5S Tail/Stop and Turn Signal Lamp - Left
A90 Logic
709 VT/GY
X110 4
E13LA Headlamp Assembly - Left
X88+T4F
X88/Z88-T4F
J145
X88
Z88
A90 Logic
K166L Multifunction LED Control Module - Left Headlamp
E2LF Side Marker Lamp - Left Front
HP5
1470 BN/VT
1
M9 Brake Booster Pump Motor

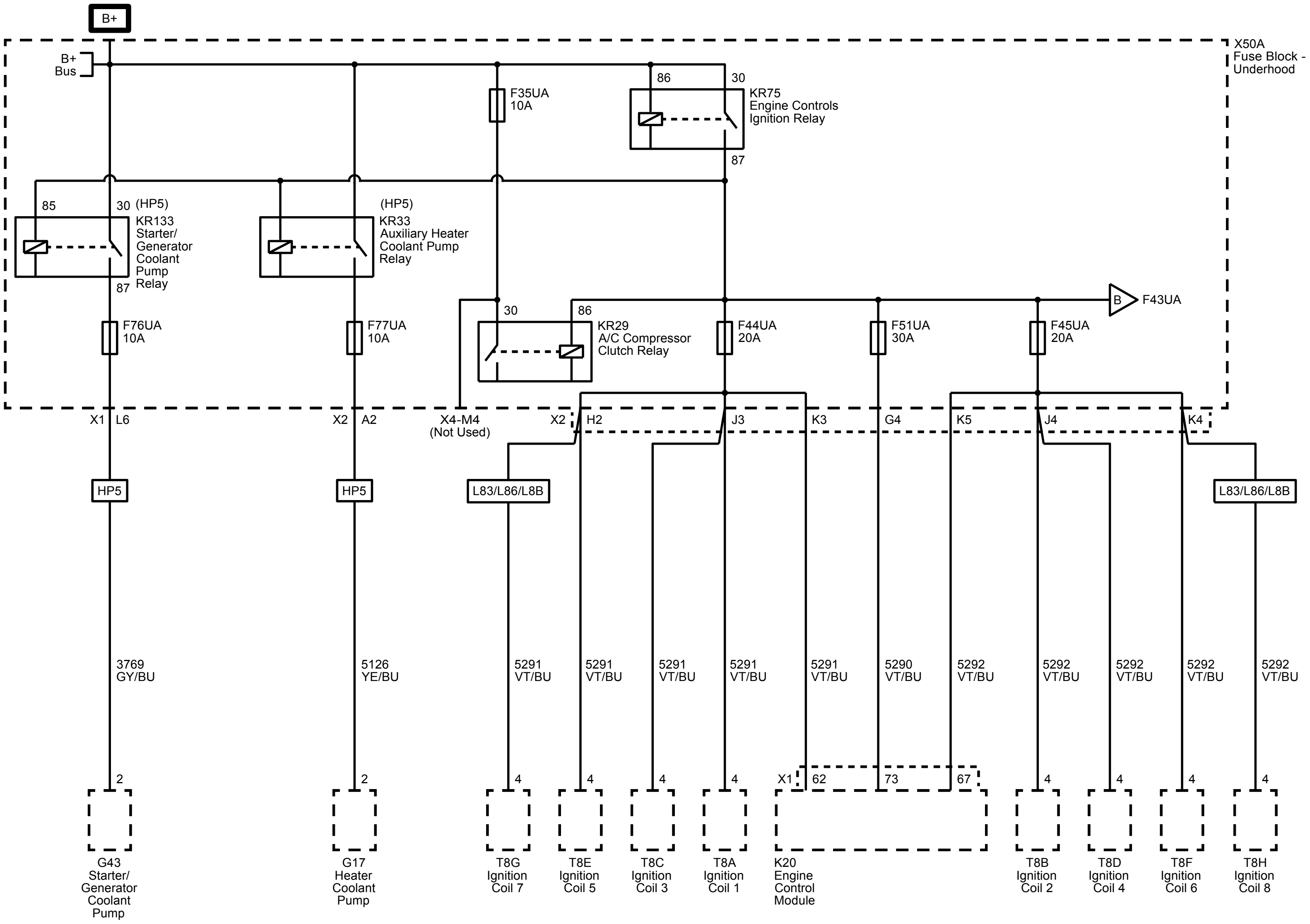
## F16UA, F33UA, F38UA and F49UA Fuses (1500)


B+
B+ BUS
X50A Fuse Block - Underhood
KR46 Front Fog Lamp Relay
KR59 Stop Lamp Relay
KR61 Trailer Backup Lamps Relay
F49UA 15A
F38UA 10A
F33UA 10A
F16UA 10A
X1 J3
X5 M1
X3 M6
X4 A3
X5 C1
M8
T3U
-E29
Z82
2234 BN/VT
1054 VT/GY
1054 VT/GY
24 L-GN/WH
24 L-GN/WH
1624 WH/L-GN
X400 4 (Not Used)
E29
-E29
J380
24 L-GN/WH
24 L-GN/WH
UVC+IO5/IO6
X100 3
X206 6
X2 33 15
X61A Junction Block - Instrument Panel
X3 35 13
X4 F3
X50A Fuse Block - Underhood
X5 F1
DD8
UVC
2234 BN/VT
24 L-GN/WH
24 L-GN/WH
1054 VT/GY
24 GN/RD
X900 2
10
J101
J400
X317 2
24 WH
24 L-GN/WH
3
2234 BN/VT
2234 BN/VT
1054 VT/GY
24 L-GN
24 L-GN
X410 1
X420 1
1
1
1
X1 9
A
E29LF Fog Lamp - Left Front
E29RF Fog Lamp - Right Front
E6 Center High Mounted Stop Lamp
A10 Inside Rearview Mirror
B87 Rearview Camera
K188 Human Machine Interface Control Module Bypass Module
E5A Backup Lamp - Left
E42L Tail Lamp Assembly - Left
E5B Backup Lamp - Right
E42R Tail Lamp Assembly - Right
X88 Trailer Connector

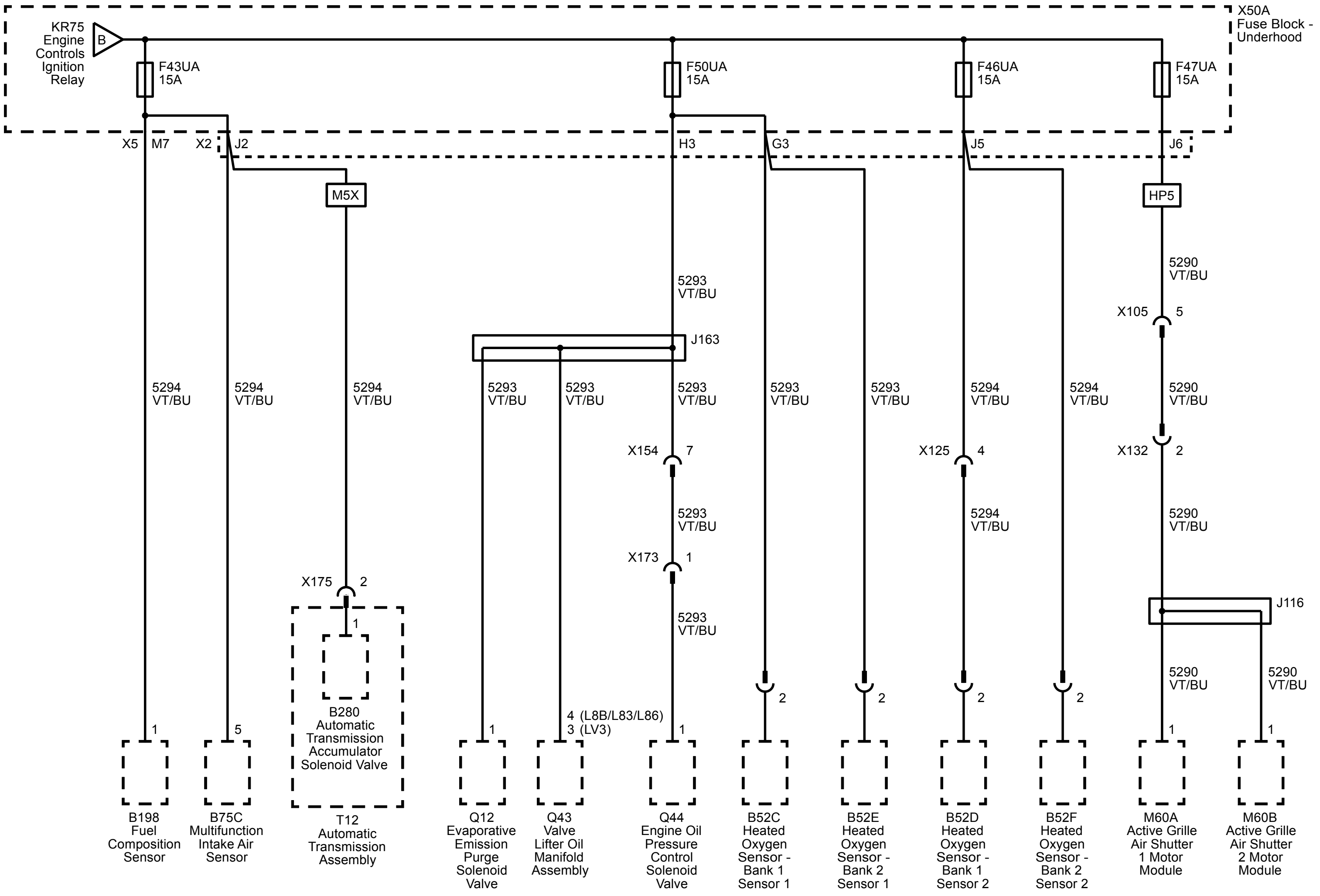
## F22UA, F23UA, F26UA, F27UA, F30UA, F31UA, F32UA, F34UA, F37UA, F39UA and F40UA Fuses (1500)


B+
B+ Bus
30
KR73 Ignition Main Relay
87
9L7
F22UA 5A
9L7
F27UA 5A
X50A Fuse Block - Underhood
F34UA 15A
F39UA 10A
F40UA 15A
9L7
F26UA 5A
9L7
F31UA 5A
85
30
KR161A Configurable Provision Relay 1
87
F37UA 30A
85
30
KR161B Configurable Provision Relay 2
87
F23UA 30A
85
30
KR161C Configurable Provision Relay 3
87
F30UA 30A
85
30
KR161D Configurable Provision Relay 4
87
F32UA 30A
X5
J5
X2
M7
X1
G3
X4
L7
X2
L7
X3
M7
X4
G2
K5
K2
JL1
HP5
Z88-T4F
HP5
NQG/NQH
M5U/M5X/MYC
439 VT/L-GN
439 PU/L-GN
25
439 VT/GN
X1
1
K59 Starter/Generator Control Module
3139 VT/GY
2139 VT/BK
2139 VT/BK
2139 VT/BK
X2
9
965 RD/L-GN
966 RD/L-GN
967 RD/L-GN
968 RD/L-GN
K38A Chassis Control Module - Auxiliary
J119
3139 VT/GY
6
X110
3139 VT/GY
6
X120
K114B Hybrid/EV Powertrain Control Module 2
X111
3
2139 VT/BK
M5U/M5X
MYC
-E29
E29
E29
-E29
-E29
E29
E29
-E29
W25 Blunt Cut - Configurable Provision
W25 Blunt Cut - Configurable Provision
6
K111 Fuel Pump Driver Control Module
439 VT/L-GN
X1
51
K20 Engine Control Module
K166L Multifunction LED Control Module - Left Headlamp
E13LA Headlamp Assembly - Left
K166R Multifunction LED Control Module - Right Headlamp
E13RA Headlamp Assembly - Right
1
M26 Front Axle Engagement Actuator
35
K71 Transmission Control Module
X1
12
Q8 Control Solenoid Valve Assembly
T12 Automatic Transmission Assembly
X1
16
31
35
48
X61A Junction Block - Instrument Panel
X7-20
X7-14
X7-4
X7-1

## F35UA, F44UA, F45UA and F51UA Fuses (1500)

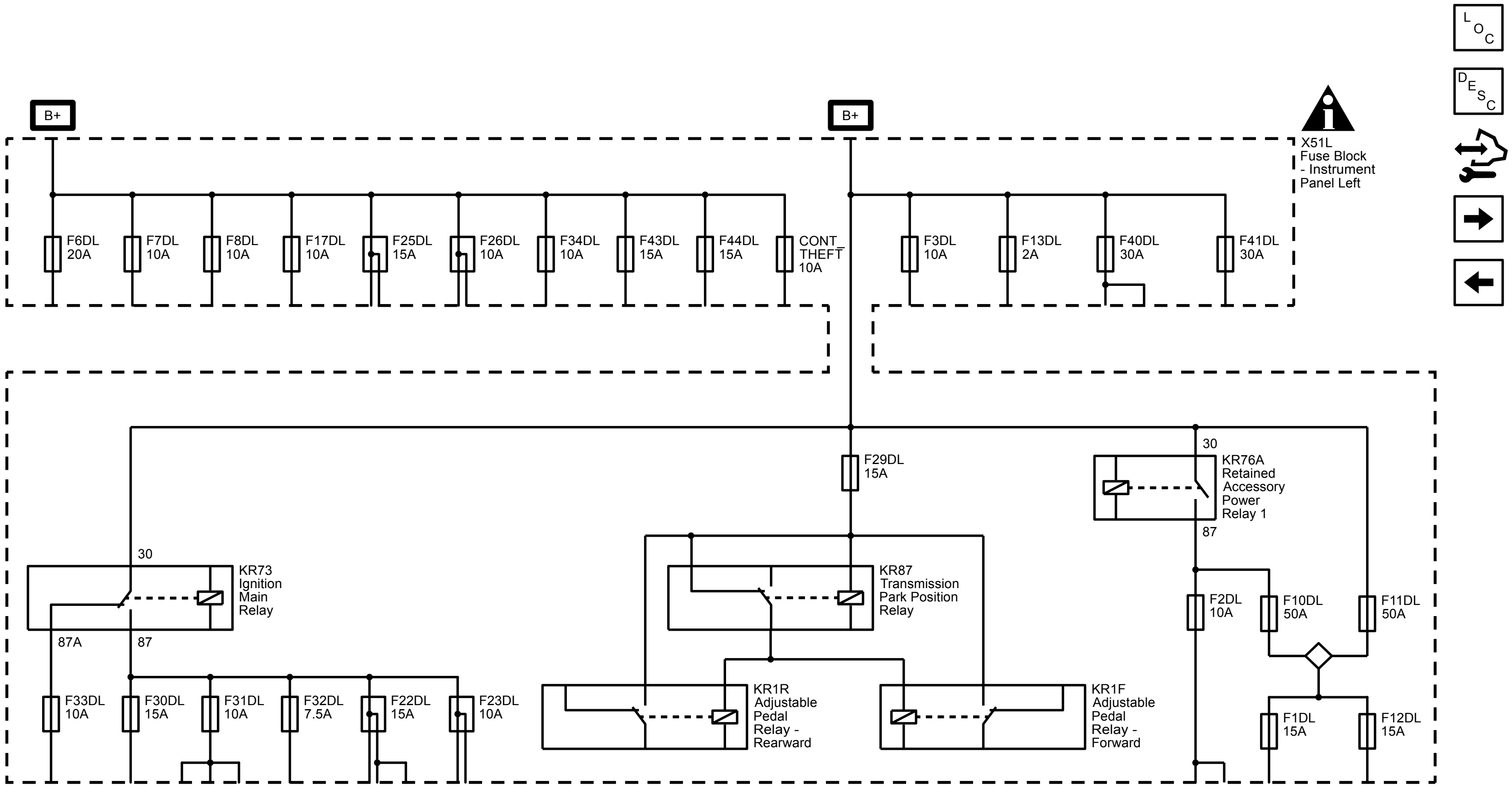

B+
B+ Bus
X50A Fuse Block - Underhood
F35UA 10A
86
30
KR75 Engine Controls Ignition Relay
87
85
30 (HP5)
KR133 Starter/ Generator Coolant Pump Relay
87
(HP5)
KR33 Auxiliary Heater Coolant Pump Relay
30
86
KR29 A/C Compressor Clutch Relay
B
F43UA
F76UA 10A
F77UA 10A
F44UA 20A
F51UA 30A
F45UA 20A
X1 L6
X2 A2
X4-M4 (Not Used)
X2 H2
J3
K3
G4
K5
J4
K4
HP5
HP5
L83/L86/L8B
L83/L86/L8B
3769 GY/BU
5126 YE/BU
5291 VT/BU
5291 VT/BU
5291 VT/BU
5291 VT/BU
5291 VT/BU
5290 VT/BU
5292 VT/BU
5292 VT/BU
5292 VT/BU
5292 VT/BU
5292 VT/BU
2
2
4
4
4
4
X1 62
73
67
4
4
4
4
G43 Starter/ Generator Coolant Pump
G17 Heater Coolant Pump
T8G Ignition Coil 7
T8E Ignition Coil 5
T8C Ignition Coil 3
T8A Ignition Coil 1
K20 Engine Control Module
T8B Ignition Coil 2
T8D Ignition Coil 4
T8F Ignition Coil 6
T8H Ignition Coil 8

## F43UA, F46UA and F50UA Fuses (1500)

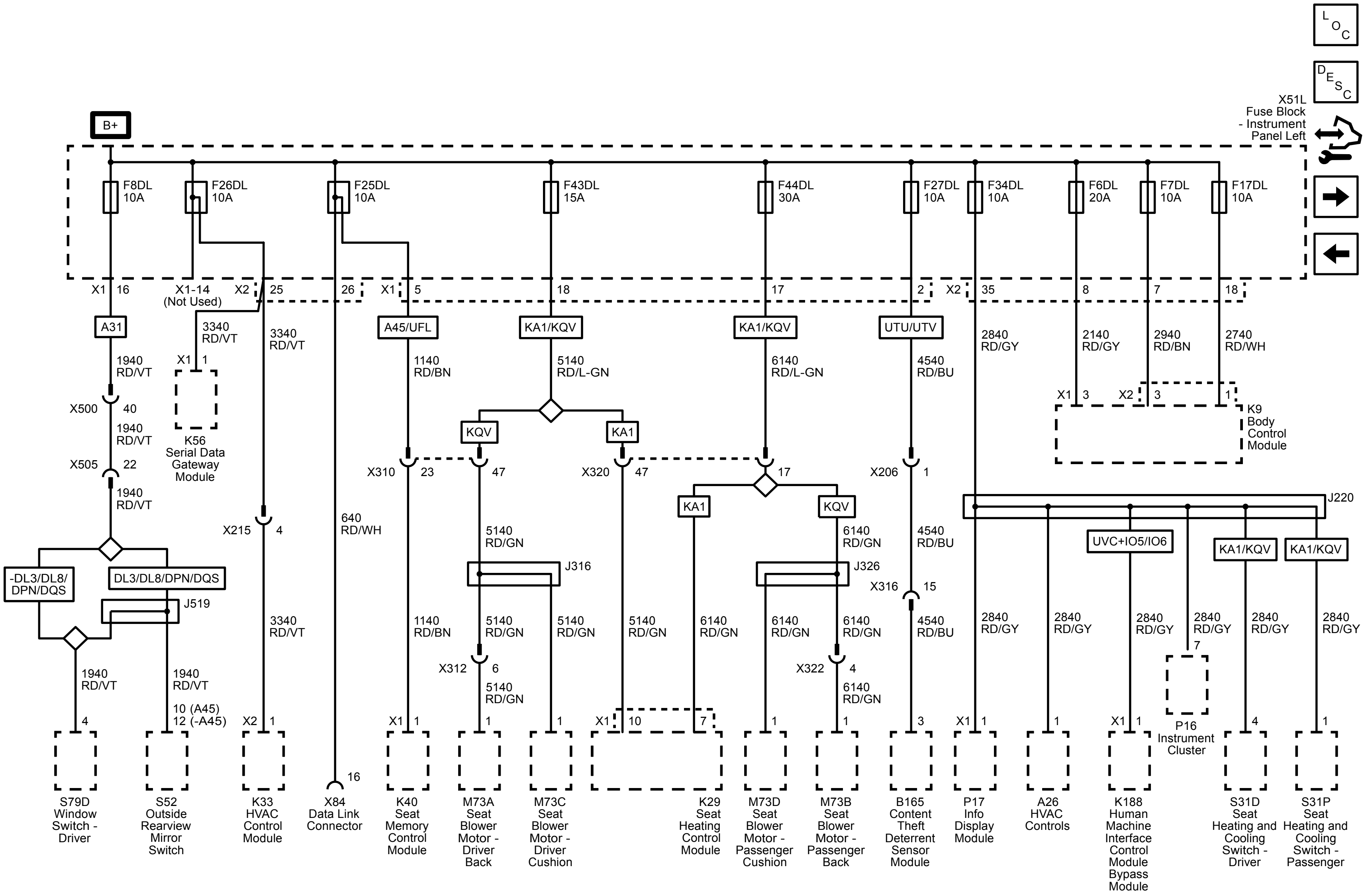

KR75 Engine Controls Ignition Relay
B
X50A Fuse Block - Underhood
F43UA 15A
F50UA 15A
F46UA 15A
F47UA 15A
X5
M7
X2
J2
H3
G3
J5
J6
M5X
HP5
5293 VT/BU
5290 VT/BU
X105
5
J163
5294 VT/BU
5294 VT/BU
5294 VT/BU
5293 VT/BU
5293 VT/BU
5293 VT/BU
5293 VT/BU
5293 VT/BU
5294 VT/BU
5294 VT/BU
5290 VT/BU
X154
7
X125
4
X132
2
5293 VT/BU
5294 VT/BU
5290 VT/BU
X173
1
X175
2
5293 VT/BU
J116
1
5290 VT/BU
5290 VT/BU
2
2
2
2
1
5
1
4 (L8B/L83/L86)
3 (LV3)
1
1
1
B280 Automatic Transmission Accumulator Solenoid Valve
B198 Fuel Composition Sensor
B75C Multifunction Intake Air Sensor
T12 Automatic Transmission Assembly
Q12 Evaporative Emission Purge Solenoid Valve
Q43 Valve Lifter Oil Manifold Assembly
Q44 Engine Oil Pressure Control Solenoid Valve
B52C Heated Oxygen Sensor - Bank 1 Sensor 1
B52E Heated Oxygen Sensor - Bank 2 Sensor 1
B52D Heated Oxygen Sensor - Bank 1 Sensor 2
B52F Heated Oxygen Sensor - Bank 2 Sensor 2
M60A Active Grille Air Shutter 1 Motor Module
M60B Active Grille Air Shutter 2 Motor Module

LOC
DESC
➡
⬅

## B+ Bus X51L Fuse Block - Instrument Panel Left (1500)

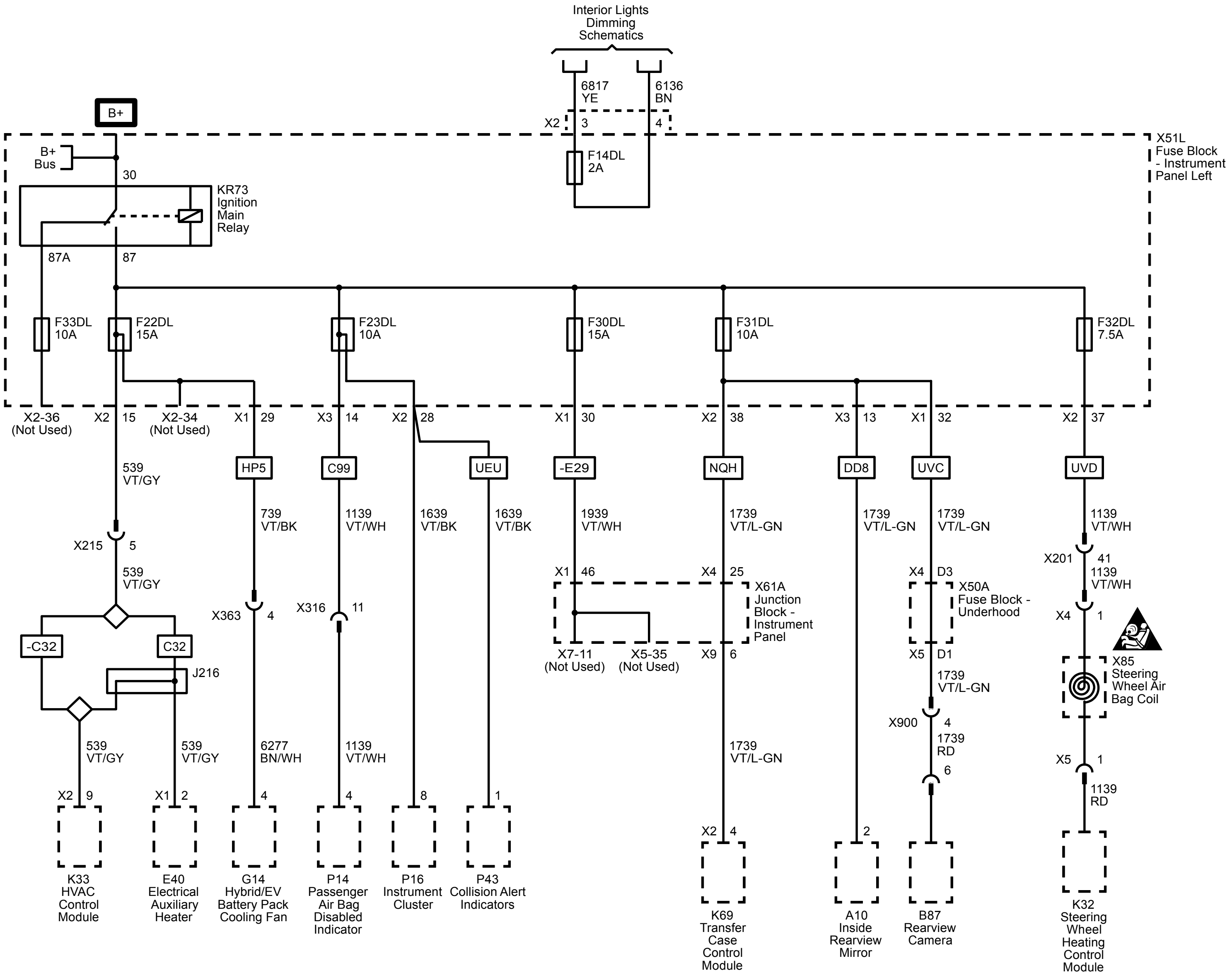

L O C
D E S C
B+
B+
X51L Fuse Block - Instrument Panel Left
F6DL 20A
F7DL 10A
F8DL 10A
F17DL 10A
F25DL 15A
F26DL 10A
F34DL 10A
F43DL 15A
F44DL 15A
CONT_THEFT 10A
F3DL 10A
F13DL 2A
F40DL 30A
F41DL 30A
F29DL 15A
30
KR76A Retained Accessory Power Relay 1
87
30
KR73 Ignition Main Relay
87A
87
KR87 Transmission Park Position Relay
F2DL 10A
F10DL 50A
F11DL 50A
F33DL 10A
F30DL 15A
F31DL 10A
F32DL 7.5A
F22DL 15A
F23DL 10A
KR1R Adjustable Pedal Relay - Rearward
KR1F Adjustable Pedal Relay - Forward
F1DL 15A
F12DL 15A

# F6DL, F7DL, F8DL, F17DL, F25DL, F26DL, F27DL, F34DL, F43DL, and F44DL Fuses (1500)

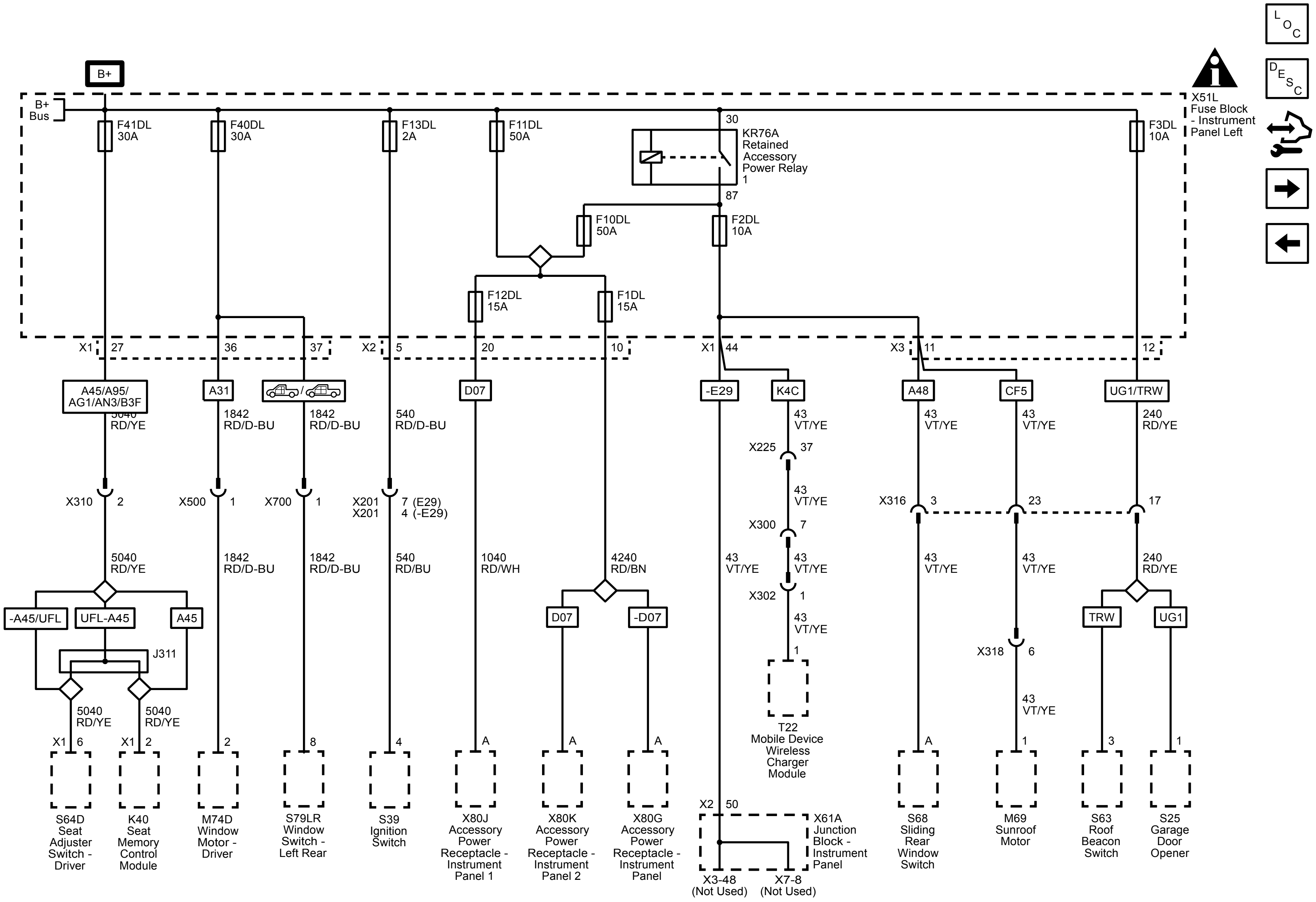


LOC
DESC
X51L Fuse Block - Instrument Panel Left
B+
F8DL 10A
F26DL 10A
F25DL 10A
F43DL 15A
F44DL 30A
F27DL 10A
F34DL 10A
F6DL 20A
F7DL 10A
F17DL 10A
X1 16
X1-14 (Not Used)
X2 25
26
X1 5
18
17
2
X2 35
8
7
18
A31
3340 RD/VT
3340 RD/VT
A45/UFL
KA1/KQV
KA1/KQV
UTU/UTV
2840 RD/GY
2140 RD/GY
2940 RD/BN
2740 RD/WH
1940 RD/VT
X1 1
1140 RD/BN
5140 RD/L-GN
6140 RD/L-GN
4540 RD/BU
X1 3
X2 3
1
K9 Body Control Module
X500 40
1940 RD/VT
K56 Serial Data Gateway Module
KQV
KA1
X505 22
X310 23
47
X320 47
17
X206 1
1940 RD/VT
KA1
KQV
J220
X215 4
640 RD/WH
UVC+IO5/IO6
KA1/KQV
KA1/KQV
-DL3/DL8/ DPN/DQS
DL3/DL8/DPN/DQS
5140 RD/GN
6140 RD/GN
4540 RD/BU
J316
J326
J519
X316 15
3340 RD/VT
1140 RD/BN
5140 RD/GN
5140 RD/GN
5140 RD/GN
6140 RD/GN
6140 RD/GN
6140 RD/GN
4540 RD/BU
2840 RD/GY
2840 RD/GY
2840 RD/GY
2840 RD/GY
2840 RD/GY
2840 RD/GY
1940 RD/VT
1940 RD/VT
X312 6
X322 4
7
5140 RD/GN
6140 RD/GN
10 (A45)
12 (-A45)
4
X2 1
X1 1
1
1
X1 10
7
1
1
3
X1 1
1
X1 1
4
1
16
P16 Instrument Cluster
S79D Window Switch - Driver
S52 Outside Rearview Mirror Switch
K33 HVAC Control Module
X84 Data Link Connector
K40 Seat Memory Control Module
M73A Seat Blower Motor - Driver Back
M73C Seat Blower Motor - Driver Cushion
K29 Seat Heating Control Module
M73D Seat Blower Motor - Passenger Cushion
M73B Seat Blower Motor - Passenger Back
B165 Content Theft Deterrent Sensor Module
P17 Info Display Module
A26 HVAC Controls
K188 Human Machine Interface Control Module Bypass Module
S31D Seat Heating and Cooling Switch - Driver
S31P Seat Heating and Cooling Switch - Passenger

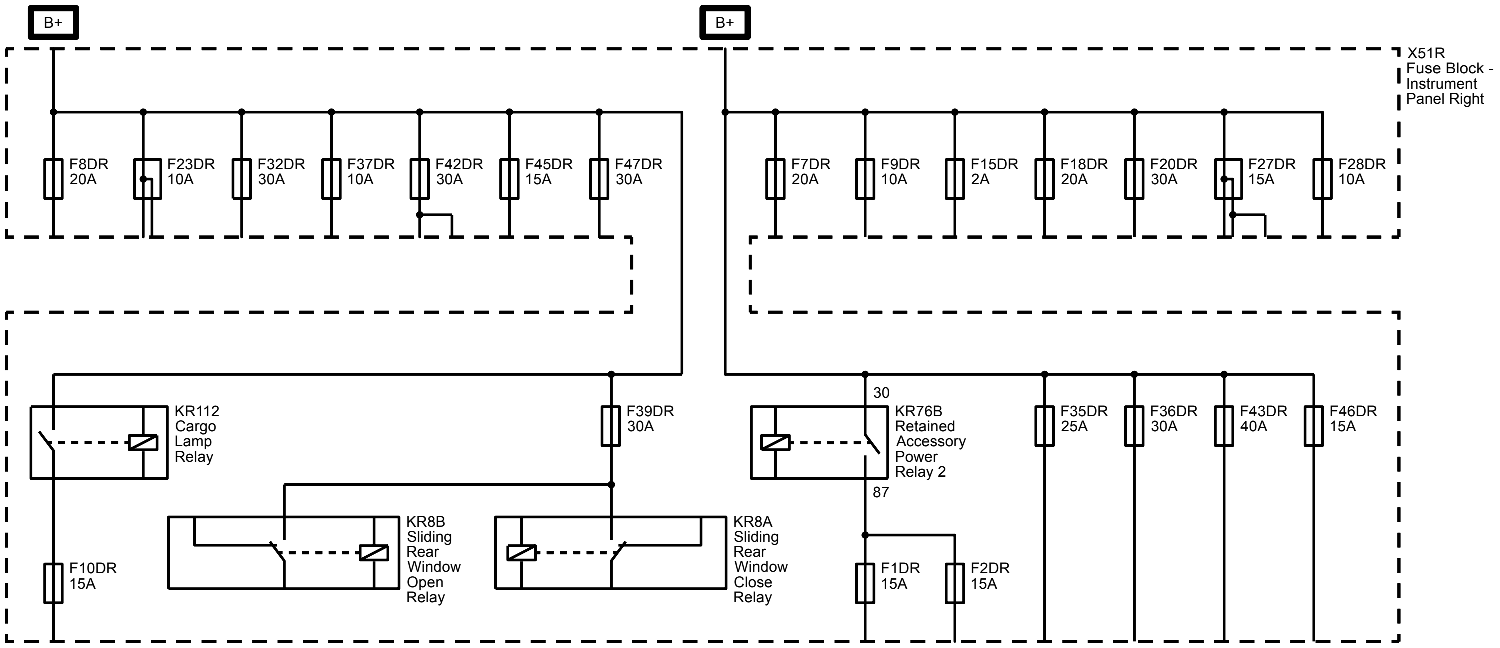
# F14DL, F22DL, F23DL, F30DL, F31DL, F32DL and F33DL Fuses (1500)


Interior Lights Dimming Schematics
6817 YE
6136 BN
X2 3
4
F14DL 2A
B+
B+ Bus
30
KR73 Ignition Main Relay
87A
87
X51L Fuse Block - Instrument Panel Left
F33DL 10A
F22DL 15A
F23DL 10A
F30DL 15A
F31DL 10A
F32DL 7.5A
X2-36 (Not Used)
X2 15
X2-34 (Not Used)
X1 29
X3 14
X2 28
X1 30
X2 38
X3 13
X1 32
X2 37
HP5
C99
UEU
-E29
NQH
DD8
UVC
UVD
539 VT/GY
739 VT/BK
1139 VT/WH
1639 VT/BK
1639 VT/BK
1939 VT/WH
1739 VT/L-GN
1739 VT/L-GN
1739 VT/L-GN
1139 VT/WH
X215 5
539 VT/GY
X363 4
X316 11
X1 46
X4 25
X61A Junction Block - Instrument Panel
X7-11 (Not Used)
X5-35 (Not Used)
X9 6
X4 D3
X50A Fuse Block - Underhood
X5 D1
1739 VT/L-GN
X201 41
1139 VT/WH
X4 1
X85 Steering Wheel Air Bag Coil
-C32
C32
J216
X900 4
1739 RD
6
X5 1
1139 RD
539 VT/GY
539 VT/GY
6277 BN/WH
1139 VT/WH
1739 VT/L-GN
X2 9
X1 2
4
4
8
1
X2 4
2
K33 HVAC Control Module
E40 Electrical Auxiliary Heater
G14 Hybrid/EV Battery Pack Cooling Fan
P14 Passenger Air Bag Disabled Indicator
P16 Instrument Cluster
P43 Collision Alert Indicators
K69 Transfer Case Control Module
A10 Inside Rearview Mirror
B87 Rearview Camera
K32 Steering Wheel Heating Control Module

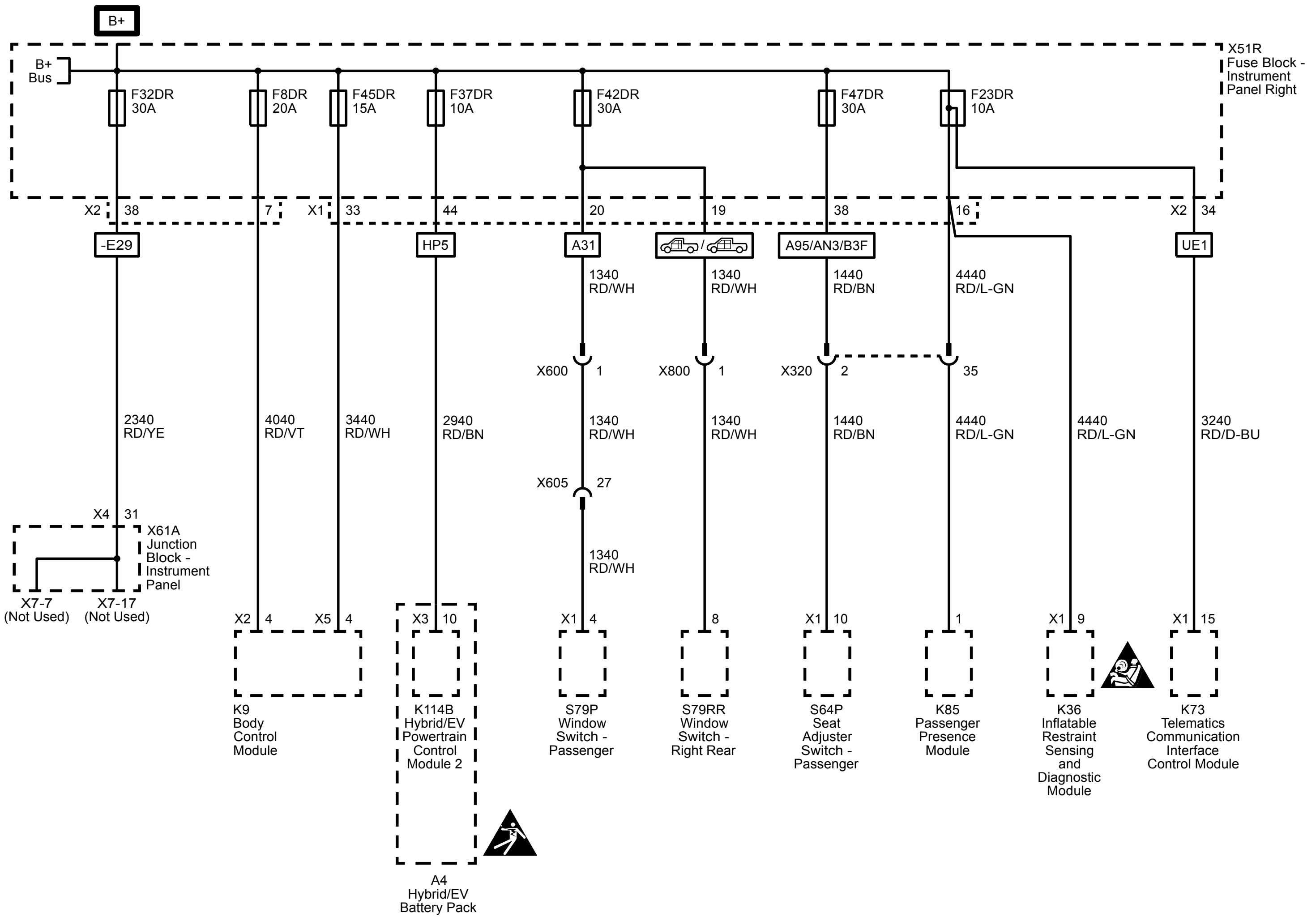
# F1DL, F2DL, F3DL, F10DL, F11DL, F12DL, F13DL, F40DL and F41DL Fuses (1500)


B+
B+ Bus
F41DL 30A
F40DL 30A
F13DL 2A
F11DL 50A
30
KR76A Retained Accessory Power Relay
1
87
F10DL 50A
F2DL 10A
F12DL 15A
F1DL 15A
F3DL 10A
X51L Fuse Block - Instrument Panel Left
X1 27
36
37
X2 5
20
10
X1 44
X3 11
12
A45/A95/AG1/AN3/B3F
5040 RD/YE
A31
1842 RD/D-BU
1842 RD/D-BU
540 RD/D-BU
D07
-E29
K4C
43 VT/YE
A48
43 VT/YE
CF5
43 VT/YE
UG1/TRW
240 RD/YE
X225 37
43 VT/YE
X310 2
X500 1
X700 1
X201 7 (E29)
X201 4 (-E29)
X316 3
23
17
X300 7
5040 RD/YE
1842 RD/D-BU
1842 RD/D-BU
540 RD/BU
1040 RD/WH
4240 RD/BN
43 VT/YE
43 VT/YE
X302 1
43 VT/YE
43 VT/YE
43 VT/YE
240 RD/YE
-A45/UFL
UFL-A45
A45
J311
D07
-D07
TRW
UG1
X318 6
43 VT/YE
1
T22 Mobile Device Wireless Charger Module
5040 RD/YE
5040 RD/YE
X1 6
X1 2
2
8
4
A
A
A
A
1
3
1
S64D Seat Adjuster Switch - Driver
K40 Seat Memory Control Module
M74D Window Motor - Driver
S79LR Window Switch - Left Rear
S39 Ignition Switch
X80J Accessory Power Receptacle - Instrument Panel 1
X80K Accessory Power Receptacle - Instrument Panel 2
X80G Accessory Power Receptacle - Instrument Panel
X2 50
X61A Junction Block - Instrument Panel
X3-48 (Not Used)
X7-8 (Not Used)
S68 Sliding Rear Window Switch
M69 Sunroof Motor
S63 Roof Beacon Switch
S25 Garage Door Opener
L O C
D E S C

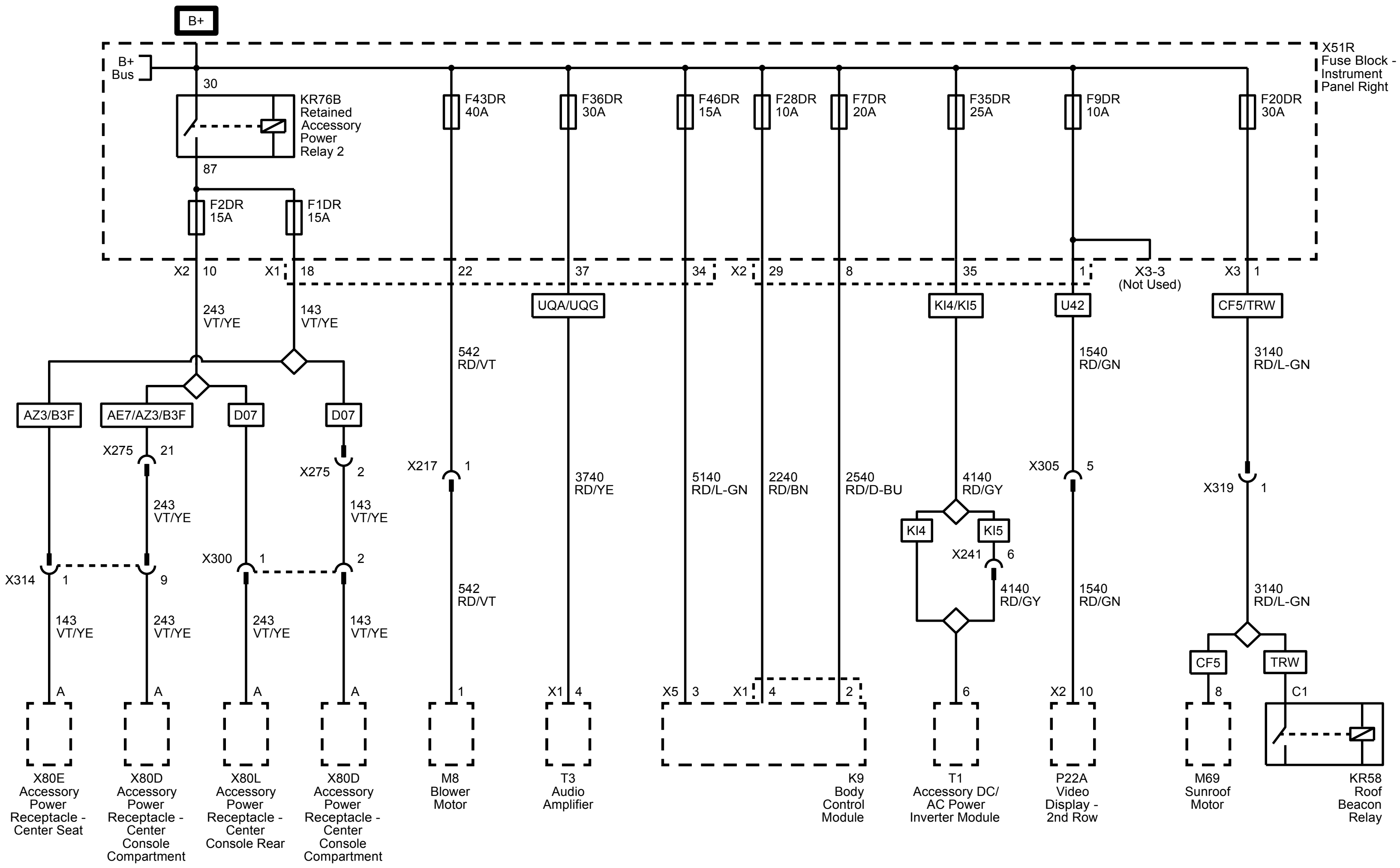
# B+ Bus X51R Fuse Block - Instrument Panel Right (1500)


B+
B+
X51R
Fuse Block -
Instrument
Panel Right
F8DR
20A
F23DR
10A
F32DR
30A
F37DR
10A
F42DR
30A
F45DR
15A
F47DR
30A
F7DR
20A
F9DR
10A
F15DR
2A
F18DR
20A
F20DR
30A
F27DR
15A
F28DR
10A
KR112
Cargo
Lamp
Relay
F39DR
30A
30
KR76B
Retained
Accessory
Power
Relay 2
87
F35DR
25A
F36DR
30A
F43DR
40A
F46DR
15A
KR8B
Sliding
Rear
Window
Open
Relay
KR8A
Sliding
Rear
Window
Close
Relay
F10DR
15A
F1DR
15A
F2DR
15A

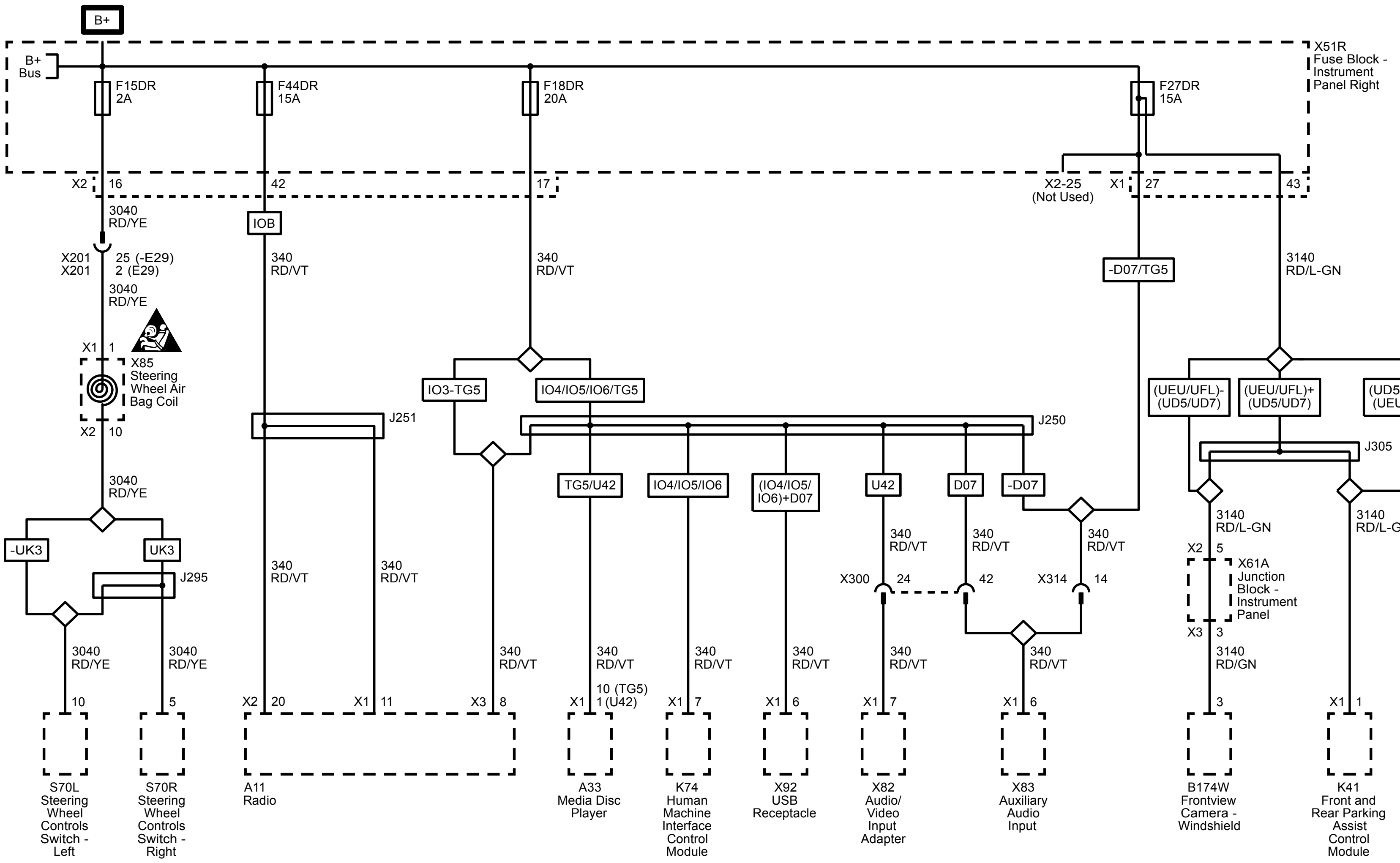
## F8DR, F23DR, F32DR, F42DR, F45DR and F47DR Fuses (1500)


B+
B+ Bus
X51R Fuse Block - Instrument Panel Right
F32DR 30A
F8DR 20A
F45DR 15A
F37DR 10A
F42DR 30A
F47DR 30A
F23DR 10A
X2 38
7
X1 33
44
20
19
38
16
X2 34
-E29
HP5
A31
A95/AN3/B3F
UE1
1340 RD/WH
1340 RD/WH
1440 RD/BN
4440 RD/L-GN
X600 1
X800 1
X320 2
35
2340 RD/YE
4040 RD/VT
3440 RD/WH
2940 RD/BN
1340 RD/WH
1340 RD/WH
1440 RD/BN
4440 RD/L-GN
4440 RD/L-GN
3240 RD/D-BU
X605 27
1340 RD/WH
X4 31
X61A Junction Block - Instrument Panel
X7-7 (Not Used)
X7-17 (Not Used)
X2 4
X5 4
X3 10
X1 4
8
X1 10
1
X1 9
X1 15
K9 Body Control Module
K114B Hybrid/EV Powertrain Control Module 2
A4 Hybrid/EV Battery Pack
S79P Window Switch - Passenger
S79RR Window Switch - Right Rear
S64P Seat Adjuster Switch - Passenger
K85 Passenger Presence Module
K36 Inflatable Restraint Sensing and Diagnostic Module
K73 Telematics Communication Interface Control Module

## F1DR, F2DR, F7DR, F9DR, F20DR, F28DR, F35DR, F36DR, F43DR and F46DR Fuses (1500)


B+
B+ Bus
30
KR76B Retained Accessory Power Relay 2
87
F2DR 15A
F1DR 15A
F43DR 40A
F36DR 30A
F46DR 15A
F28DR 10A
F7DR 20A
F35DR 25A
F9DR 10A
F20DR 30A
X51R Fuse Block - Instrument Panel Right
X2 10
X1 18
22
37
34
X2 29
8
35
1
X3-3 (Not Used)
X3 1
243 VT/YE
143 VT/YE
UQA/UQG
KI4/KI5
U42
CF5/TRW
542 RD/VT
1540 RD/GN
3140 RD/L-GN
AZ3/B3F
AE7/AZ3/B3F
D07
D07
X275 21
X275 2
X217 1
3740 RD/YE
5140 RD/L-GN
2240 RD/BN
2540 RD/D-BU
4140 RD/GY
X305 5
X319 1
243 VT/YE
143 VT/YE
KI4
KI5
X241 6
X314 1
9
X300 1
2
542 RD/VT
4140 RD/GY
1540 RD/GN
3140 RD/L-GN
143 VT/YE
243 VT/YE
243 VT/YE
143 VT/YE
CF5
TRW
A
A
A
A
1
X1 4
X5 3
X1 4
2
6
X2 10
8
C1
X80E Accessory Power Receptacle - Center Seat
X80D Accessory Power Receptacle - Center Console Compartment
X80L Accessory Power Receptacle - Center Console Rear
X80D Accessory Power Receptacle - Center Console Compartment
M8 Blower Motor
T3 Audio Amplifier
K9 Body Control Module
T1 Accessory DC/ AC Power Inverter Module
P22A Video Display - 2nd Row
M69 Sunroof Motor
KR58 Roof Beacon Relay

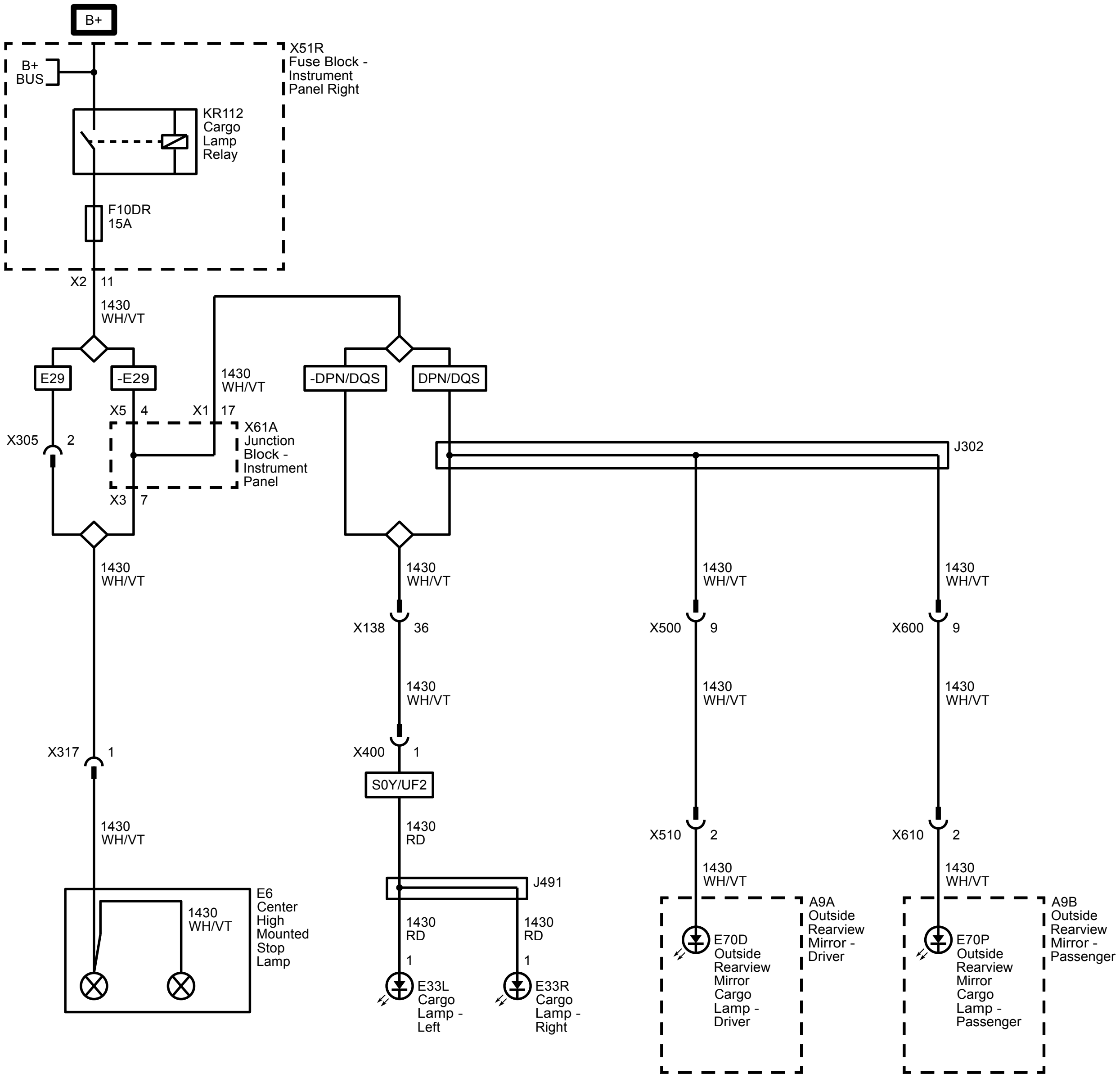
# F15DR, F18DR, F27DR and F44DR Fuses (1500)



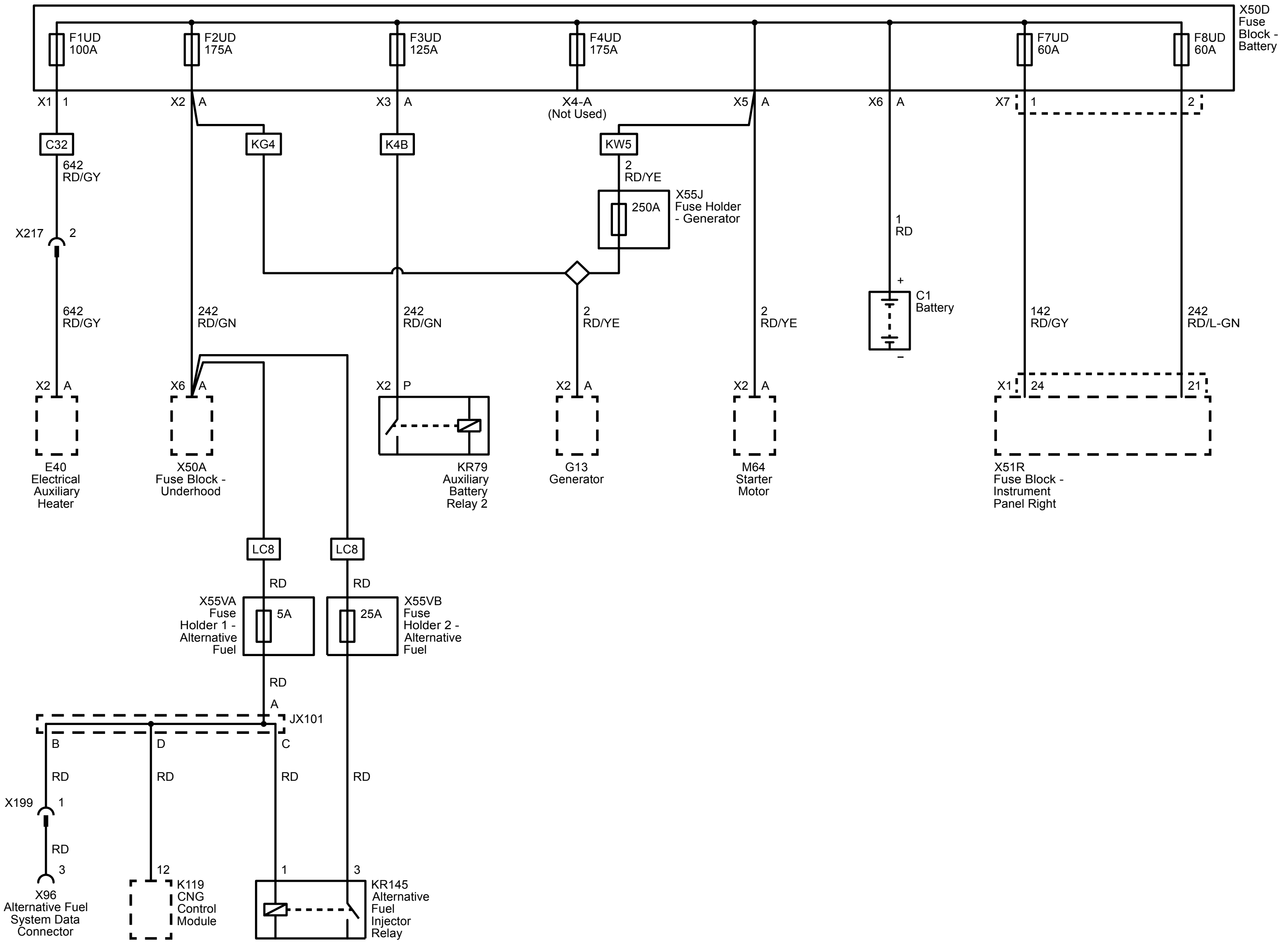
B+
B+ Bus
F15DR 2A
F44DR 15A
F18DR 20A
F27DR 15A
X51R Fuse Block - Instrument Panel Right
X2 16
42
17
X2-25 (Not Used)
X1 27
43
3040 RD/YE
IOB
X201 25 (-E29)
X201 2 (E29)
340 RD/VT
-D07/TG5
3140 RD/L-GN
X1 1
X85 Steering Wheel Air Bag Coil
X2 10
IO3-TG5
IO4/IO5/IO6/TG5
J251
J250
(UEU/UFL)- (UD5/UD7)
(UEU/UFL)+ (UD5/UD7)
(UD5/UD7)- (UEU/UFL)
J305
TG5/U42
IO4/IO5/IO6
(IO4/IO5/ IO6)+D07
U42
D07
-D07
-UK3
UK3
J295
X2 5
X61A Junction Block - Instrument Panel
X3 3
X300 24
42
X314 14
3140 RD/GN
X2 20
X1 11
X3 8
X1 10 (TG5) 1 (U42)
X1 7
X1 6
X1 7
X1 6
3
X1 1
10
5
S70L Steering Wheel Controls Switch - Left
S70R Steering Wheel Controls Switch - Right
A11 Radio
A33 Media Disc Player
K74 Human Machine Interface Control Module
X92 USB Receptacle
X82 Audio/ Video Input Adapter
X83 Auxiliary Audio Input
B174W Frontview Camera - Windshield
K41 Front and Rear Parking Assist Control Module

## F10DR Fuse (1500)

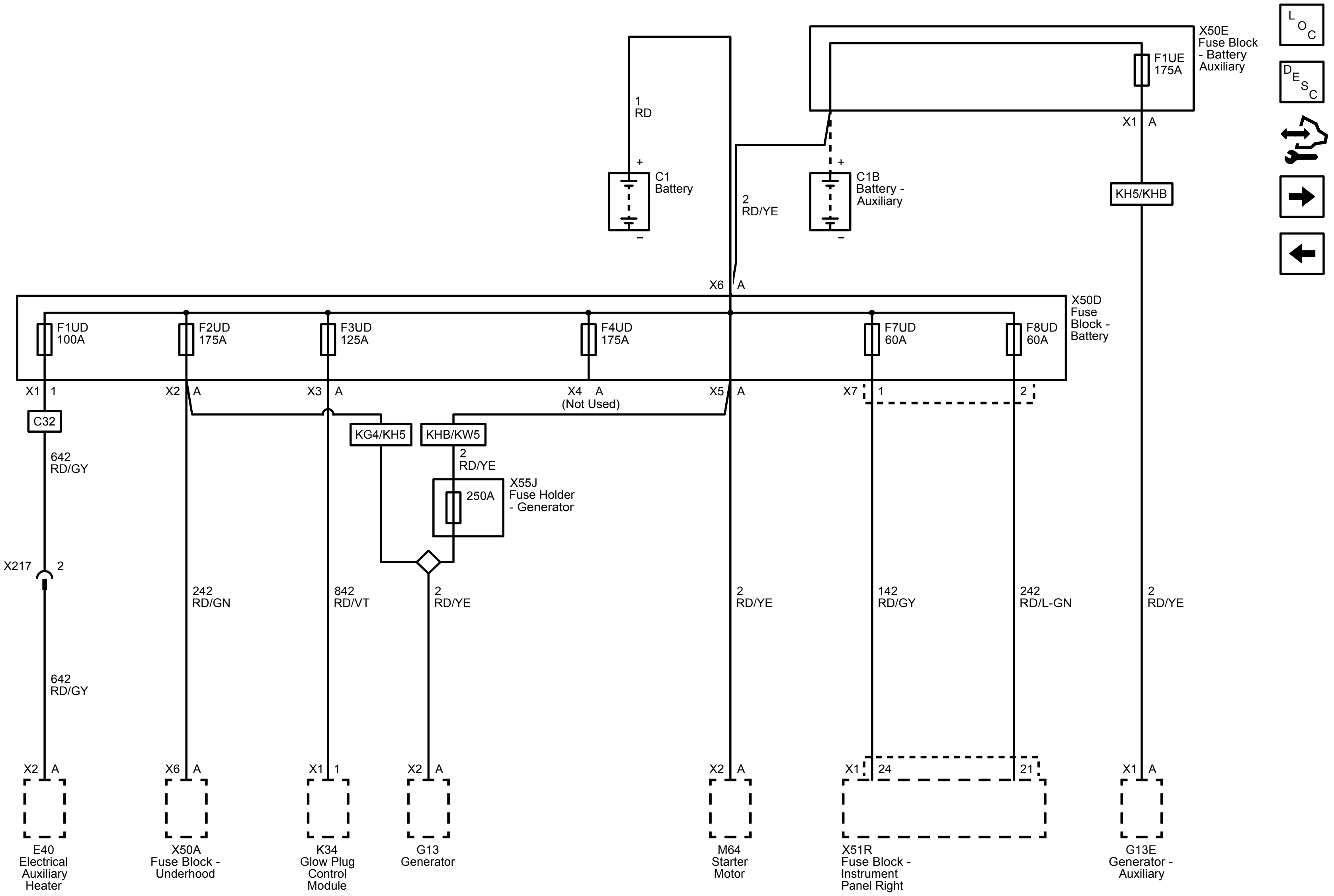
LOC
DESC


B+
B+ BUS
X51R Fuse Block - Instrument Panel Right
KR112 Cargo Lamp Relay
F10DR 15A
X2 11
1430 WH/VT
E29
-E29
1430 WH/VT
-DPN/DQS
DPN/DQS
X5 4
X1 17
X61A Junction Block - Instrument Panel
X305 2
X3 7
J302
1430 WH/VT
1430 WH/VT
1430 WH/VT
1430 WH/VT
X138 36
X500 9
X600 9
1430 WH/VT
1430 WH/VT
1430 WH/VT
X317 1
X400 1
S0Y/UF2
X510 2
X610 2
1430 WH/VT
1430 RD
J491
1430 WH/VT
1430 WH/VT
E6 Center High Mounted Stop Lamp
1430 WH/VT
1430 RD
1430 RD
1
1
E33L Cargo Lamp - Left
E33R Cargo Lamp - Right
A9A Outside Rearview Mirror - Driver
E70D Outside Rearview Mirror Cargo Lamp - Driver
A9B Outside Rearview Mirror - Passenger
E70P Outside Rearview Mirror Cargo Lamp - Passenger

## X50D Fuse Block - Battery (2500/3500 with L96 or LC8)

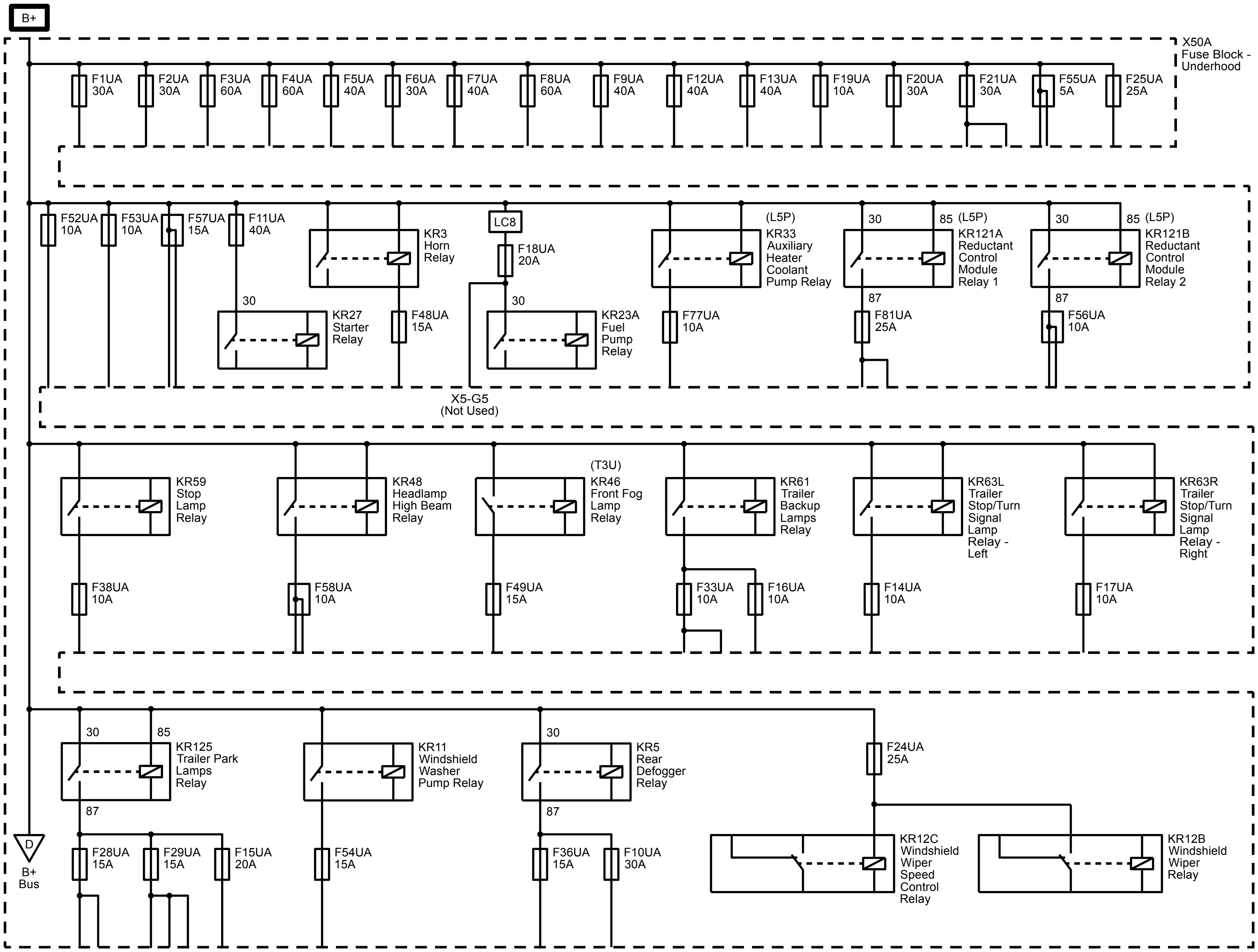

X50D
Fuse
Block -
Battery
F1UD
100A
F2UD
175A
F3UD
125A
F4UD
175A
F7UD
60A
F8UD
60A
X1 1
X2 A
X3 A
X4-A
(Not Used)
X5 A
X6 A
X7 1
2
C32
KG4
K4B
KW5
642
RD/GY
2
RD/YE
X55J
Fuse Holder
- Generator
250A
X217 2
1
RD
+
C1
Battery
−
642
RD/GY
242
RD/GN
242
RD/GN
2
RD/YE
2
RD/YE
142
RD/GY
242
RD/L-GN
X2 A
X6 A
X2 P
X2 A
X2 A
X1 24
21
E40
Electrical
Auxiliary
Heater
X50A
Fuse Block -
Underhood
KR79
Auxiliary
Battery
Relay 2
G13
Generator
M64
Starter
Motor
X51R
Fuse Block -
Instrument
Panel Right
LC8
LC8
RD
RD
X55VA
Fuse
Holder 1 -
Alternative
Fuel
5A
25A
X55VB
Fuse
Holder 2 -
Alternative
Fuel
RD
A
JX101
B
D
C
RD
RD
RD
RD
X199 1
RD
3
X96
Alternative Fuel
System Data
Connector
12
K119
CNG
Control
Module
1
3
KR145
Alternative
Fuel
Injector
Relay

# X50D Fuse Block - Battery (2500/3500 with L5P)

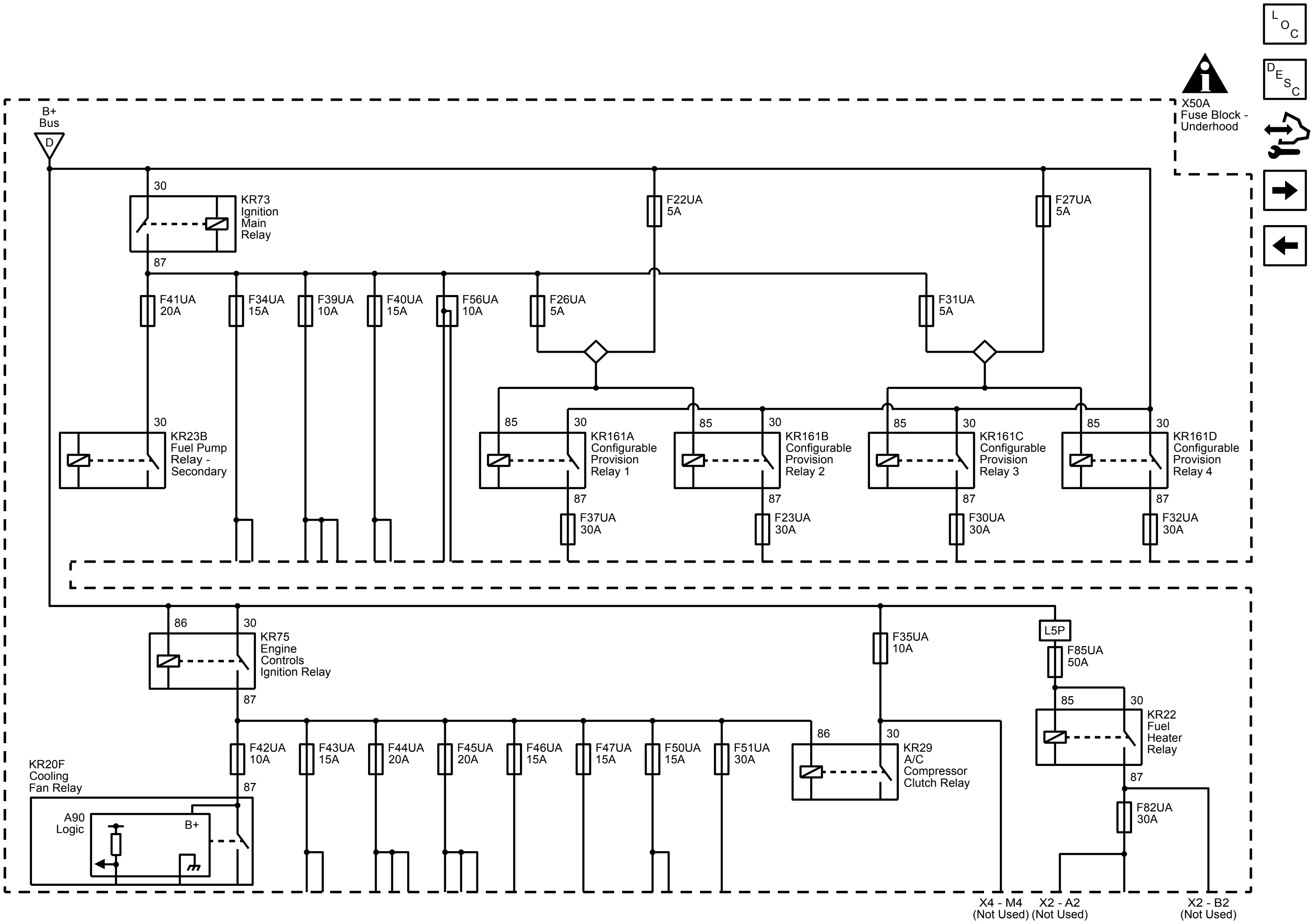


X50E
Fuse Block
- Battery
Auxiliary
F1UE
175A
X1 A
KH5/KHB
1
RD
+
C1
Battery
–
2
RD/YE
+
C1B
Battery -
Auxiliary
–
X6 A
X50D
Fuse
Block -
Battery
F1UD
100A
F2UD
175A
F3UD
125A
F4UD
175A
F7UD
60A
F8UD
60A
X1 1
X2 A
X3 A
X4 A
(Not Used)
X5 A
X7 1
2
C32
KG4/KH5
KHB/KW5
2
RD/YE
X55J
Fuse Holder
- Generator
250A
642
RD/GY
X217 2
242
RD/GN
842
RD/VT
2
RD/YE
2
RD/YE
142
RD/GY
242
RD/L-GN
2
RD/YE
642
RD/GY
X2 A
X6 A
X1 1
X2 A
X2 A
X1 24
21
X1 A
E40
Electrical
Auxiliary
Heater
X50A
Fuse Block -
Underhood
K34
Glow Plug
Control
Module
G13
Generator
M64
Starter
Motor
X51R
Fuse Block -
Instrument
Panel Right
G13E
Generator -
Auxiliary
LOC
DESC

# B+ Bus X50A Fuse Block - Underhood 1 of 2 (2500/3500)

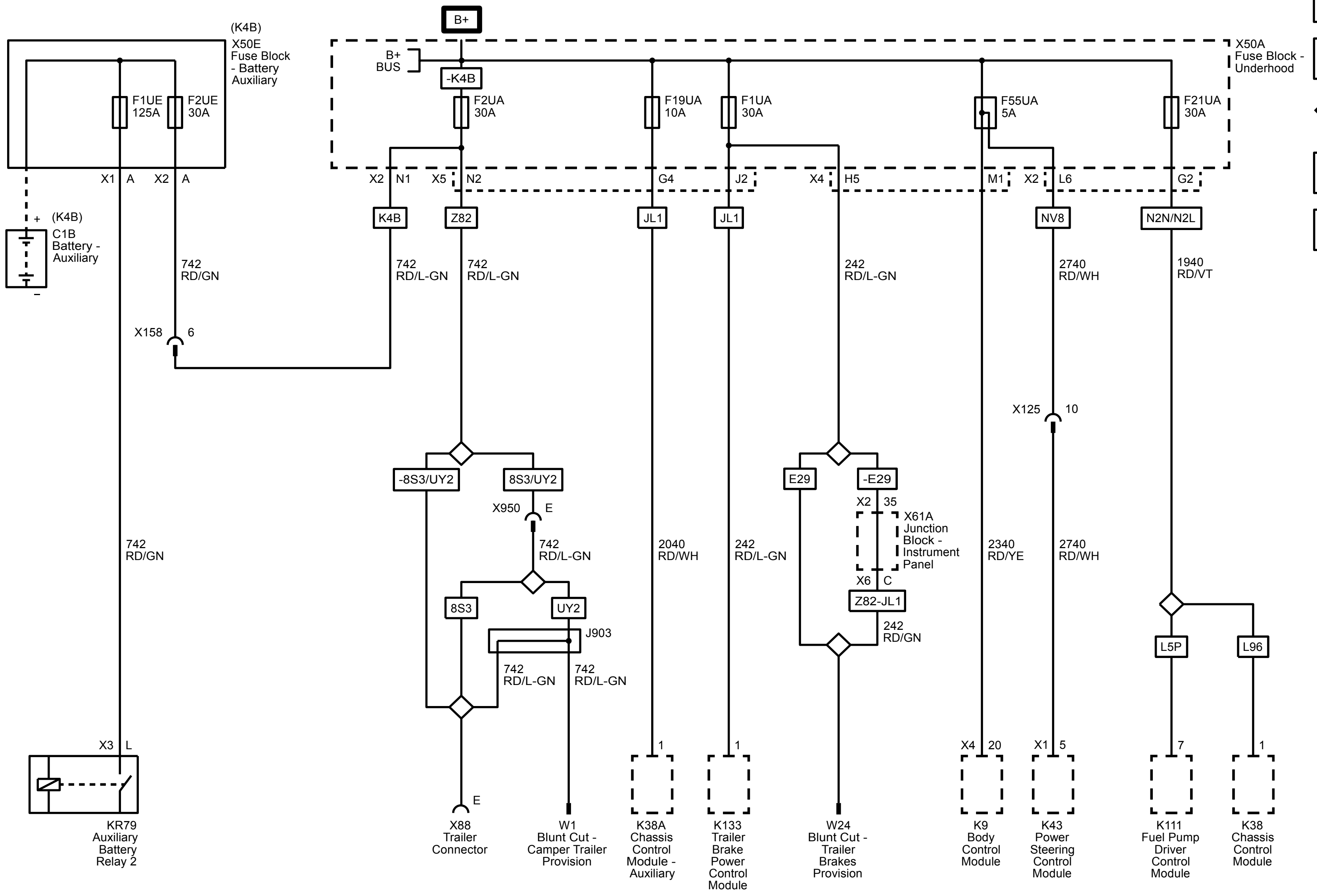

B+
X50A
Fuse Block -
Underhood
F1UA
30A
F2UA
30A
F3UA
60A
F4UA
60A
F5UA
40A
F6UA
30A
F7UA
40A
F8UA
60A
F9UA
40A
F12UA
40A
F13UA
40A
F19UA
10A
F20UA
30A
F21UA
30A
F55UA
5A
F25UA
25A
F52UA
10A
F53UA
10A
F57UA
15A
F11UA
40A
KR3
Horn
Relay
LC8
F18UA
20A
(L5P)
KR33
Auxiliary
Heater
Coolant
Pump Relay
30
85
(L5P)
KR121A
Reductant
Control
Module
Relay 1
30
85
(L5P)
KR121B
Reductant
Control
Module
Relay 2
30
KR27
Starter
Relay
F48UA
15A
30
KR23A
Fuel
Pump
Relay
F77UA
10A
87
F81UA
25A
87
F56UA
10A
X5-G5
(Not Used)
KR59
Stop
Lamp
Relay
KR48
Headlamp
High Beam
Relay
(T3U)
KR46
Front Fog
Lamp
Relay
KR61
Trailer
Backup
Lamps
Relay
KR63L
Trailer
Stop/Turn
Signal
Lamp
Relay -
Left
KR63R
Trailer
Stop/Turn
Signal
Lamp
Relay -
Right
F38UA
10A
F58UA
10A
F49UA
15A
F33UA
10A
F16UA
10A
F14UA
10A
F17UA
10A
30
85
KR125
Trailer Park
Lamps
Relay
KR11
Windshield
Washer
Pump Relay
30
KR5
Rear
Defogger
Relay
F24UA
25A
87
87
D
B+
Bus
F28UA
15A
F29UA
15A
F15UA
20A
F54UA
15A
F36UA
15A
F10UA
30A
KR12C
Windshield
Wiper
Speed
Control
Relay
KR12B
Windshield
Wiper
Relay

# B+ Bus X50A Fuse Block - Underhood 2 of 2 (2500/3500)

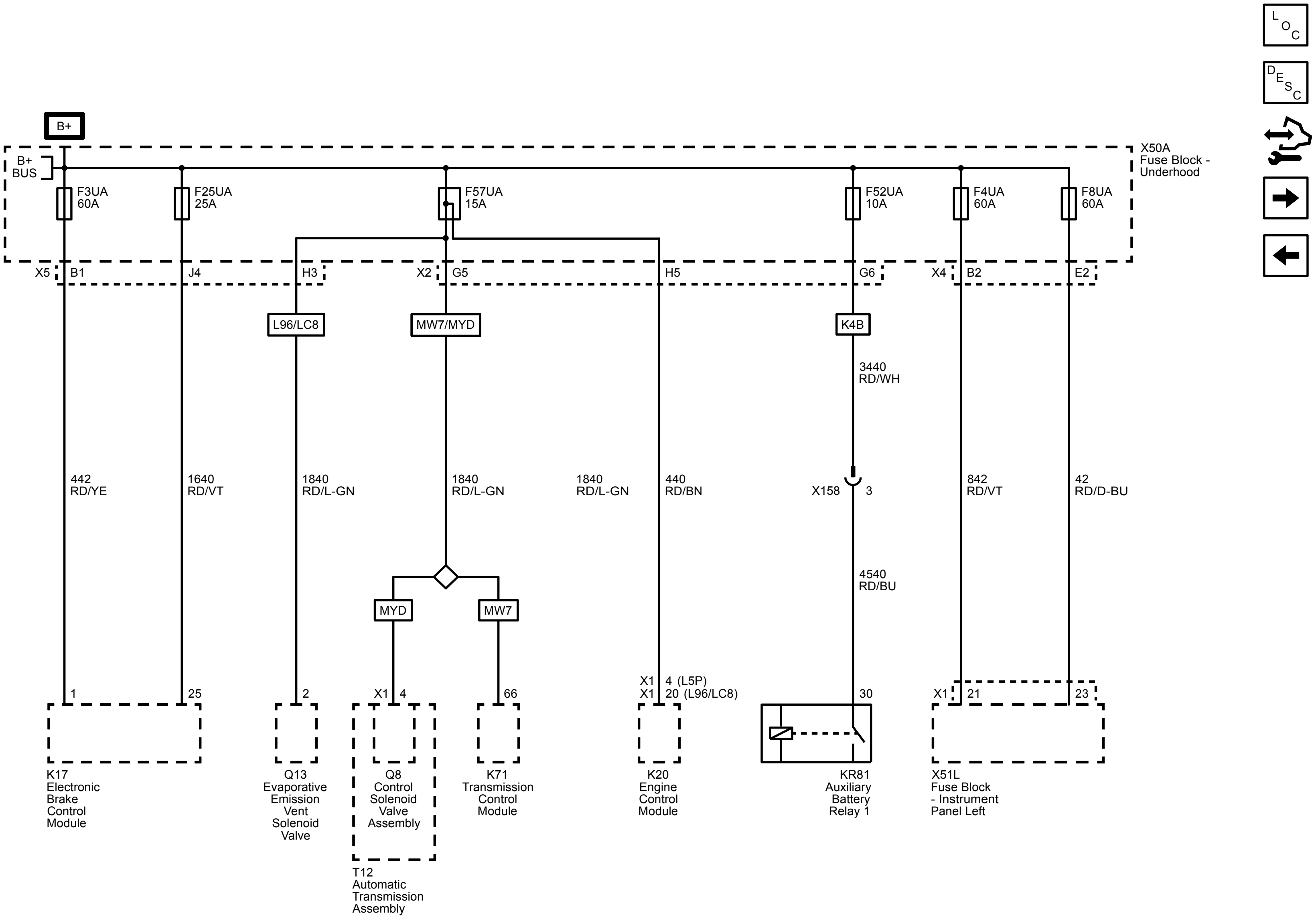


L O C
D E S C
X50A
Fuse Block -
Underhood
B+
Bus
D
30
KR73
Ignition
Main
Relay
87
F22UA
5A
F27UA
5A
F41UA
20A
F34UA
15A
F39UA
10A
F40UA
15A
F56UA
10A
F26UA
5A
F31UA
5A
30
KR23B
Fuel Pump
Relay -
Secondary
85
30
KR161A
Configurable
Provision
Relay 1
87
F37UA
30A
85
30
KR161B
Configurable
Provision
Relay 2
87
F23UA
30A
85
30
KR161C
Configurable
Provision
Relay 3
87
F30UA
30A
85
30
KR161D
Configurable
Provision
Relay 4
87
F32UA
30A
86
30
KR75
Engine
Controls
Ignition Relay
87
F35UA
10A
L5P
F85UA
50A
85
30
KR22
Fuel
Heater
Relay
87
F82UA
30A
F42UA
10A
87
F43UA
15A
F44UA
20A
F45UA
20A
F46UA
15A
F47UA
15A
F50UA
15A
F51UA
30A
86
30
KR29
A/C
Compressor
Clutch Relay
KR20F
Cooling
Fan Relay
A90
Logic
B+
X4 - M4
(Not Used)
X2 - A2
(Not Used)
X2 - B2
(Not Used)

# F1UA, F1UE, F2UA, F2UE, F19UA, F21UA, and F55UA Fuses (2500/3500)

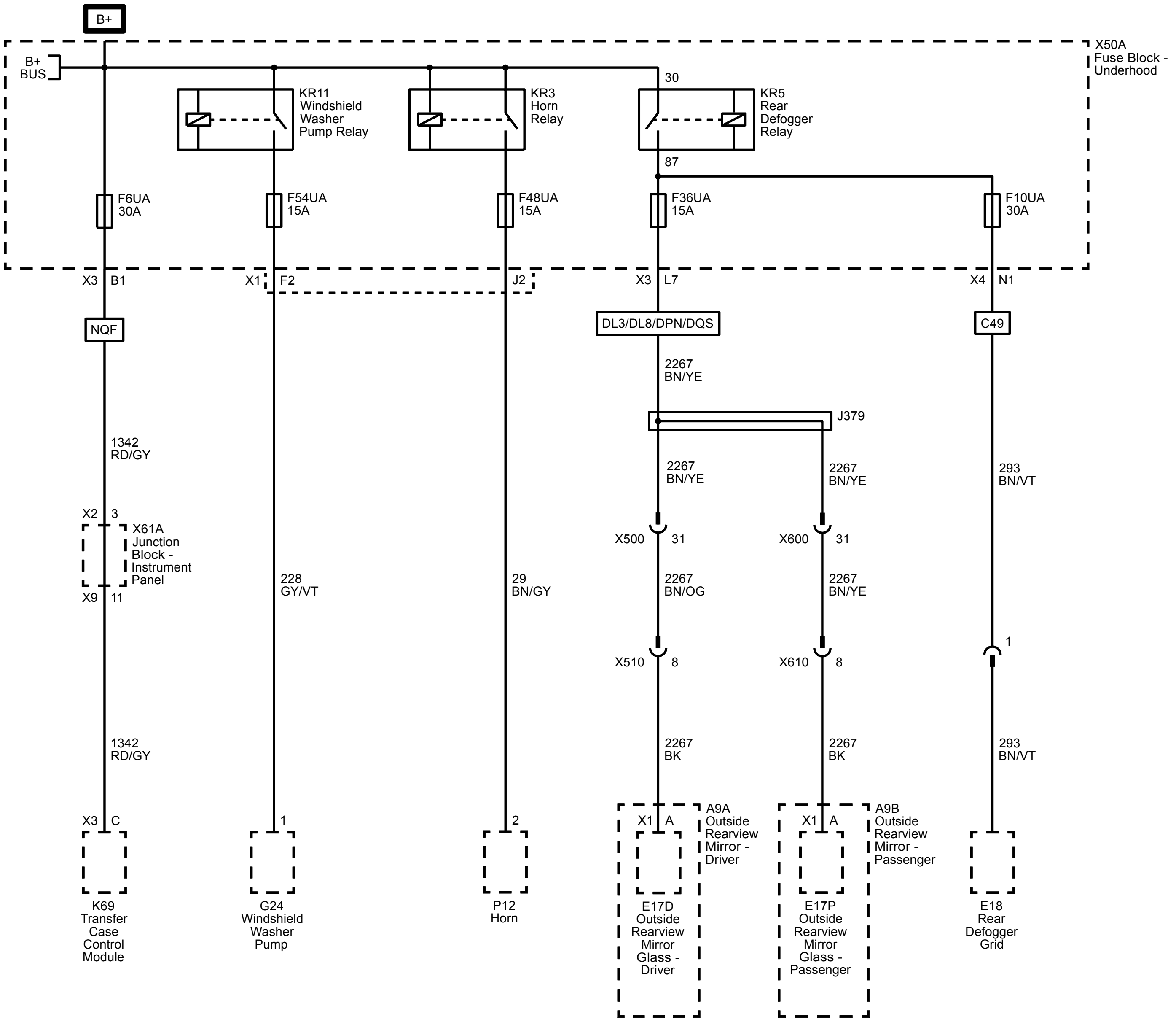

B+
(K4B)
X50E
Fuse Block
- Battery
Auxiliary
F1UE
125A
F2UE
30A
X1 A
X2 A
+
(K4B)
C1B
Battery -
Auxiliary
−
742
RD/GN
X158 6
742
RD/GN
X3 L
KR79
Auxiliary
Battery
Relay 2
B+
BUS
-K4B
F2UA
30A
F19UA
10A
F1UA
30A
F55UA
5A
F21UA
30A
X50A
Fuse Block -
Underhood
X2 N1
X5 N2
G4
J2
X4 H5
M1
X2 L6
G2
K4B
Z82
JL1
JL1
NV8
N2N/N2L
742
RD/L-GN
742
RD/L-GN
242
RD/L-GN
2740
RD/WH
1940
RD/VT
X125 10
-8S3/UY2
8S3/UY2
X950 E
742
RD/L-GN
8S3
UY2
J903
742
RD/L-GN
742
RD/L-GN
E
X88
Trailer
Connector
W1
Blunt Cut -
Camper Trailer
Provision
2040
RD/WH
1
K38A
Chassis
Control
Module -
Auxiliary
242
RD/L-GN
1
K133
Trailer
Brake
Power
Control
Module
E29
-E29
X2 35
X61A
Junction
Block -
Instrument
Panel
X6 C
Z82-JL1
242
RD/GN
W24
Blunt Cut -
Trailer
Brakes
Provision
2340
RD/YE
X4 20
K9
Body
Control
Module
2740
RD/WH
X1 5
K43
Power
Steering
Control
Module
L5P
L96
7
K111
Fuel Pump
Driver
Control
Module
1
K38
Chassis
Control
Module

# F3UA, F4UA, F8UA, F25UA F52UA and F57UA Fuses (2500/3500)

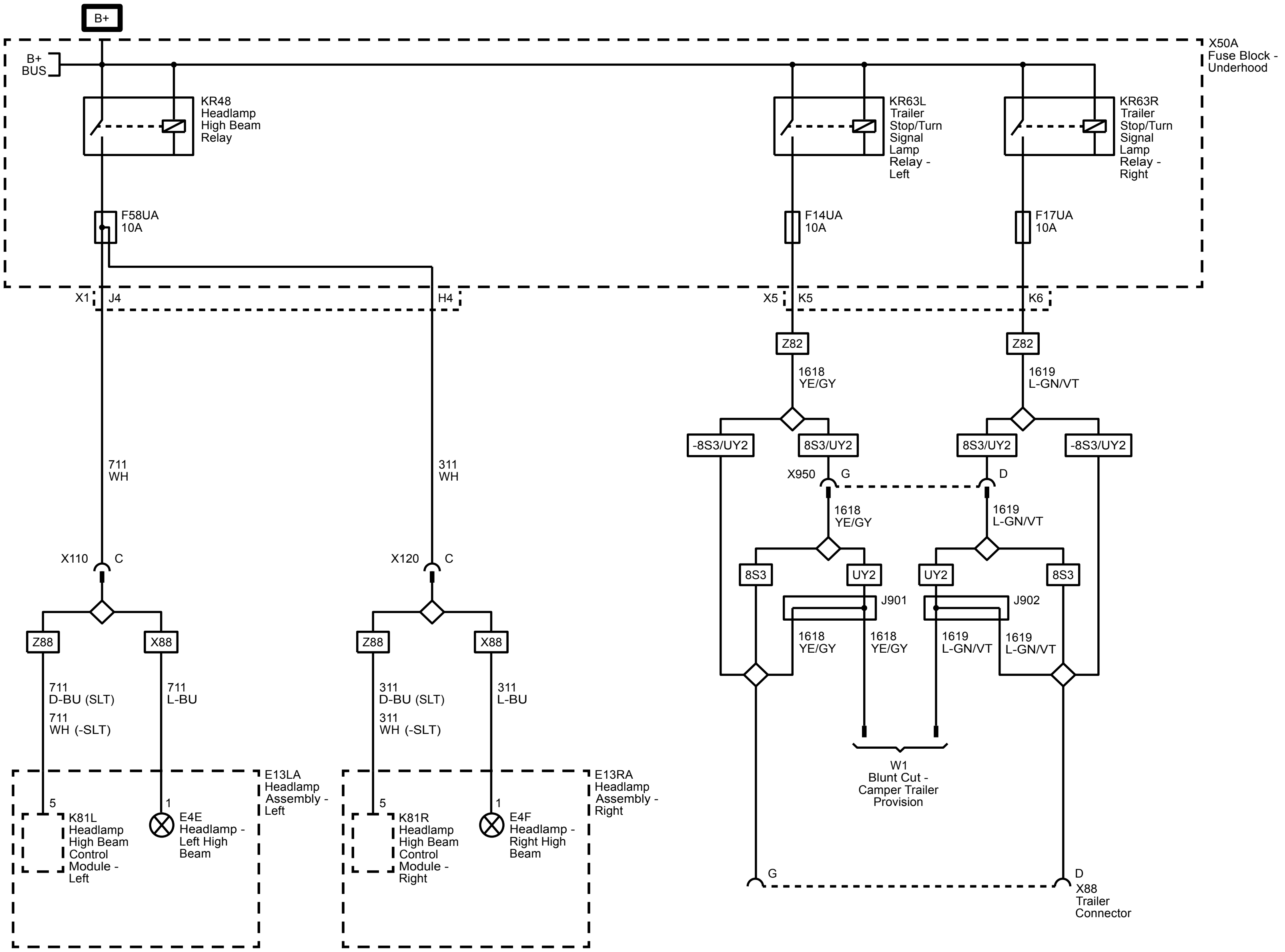


L O C
D E S C
B+
B+ BUS
F3UA 60A
F25UA 25A
F57UA 15A
F52UA 10A
F4UA 60A
F8UA 60A
X50A Fuse Block - Underhood
X5
B1
J4
H3
X2
G5
H5
G6
X4
B2
E2
L96/LC8
MW7/MYD
K4B
3440 RD/WH
442 RD/YE
1640 RD/VT
1840 RD/L-GN
1840 RD/L-GN
1840 RD/L-GN
440 RD/BN
X158
3
842 RD/VT
42 RD/D-BU
4540 RD/BU
MYD
MW7
1
25
2
X1
4
66
X1 4 (L5P)
X1 20 (L96/LC8)
30
X1
21
23
K17 Electronic Brake Control Module
Q13 Evaporative Emission Vent Solenoid Valve
Q8 Control Solenoid Valve Assembly
K71 Transmission Control Module
K20 Engine Control Module
KR81 Auxiliary Battery Relay 1
X51L Fuse Block - Instrument Panel Left
T12 Automatic Transmission Assembly

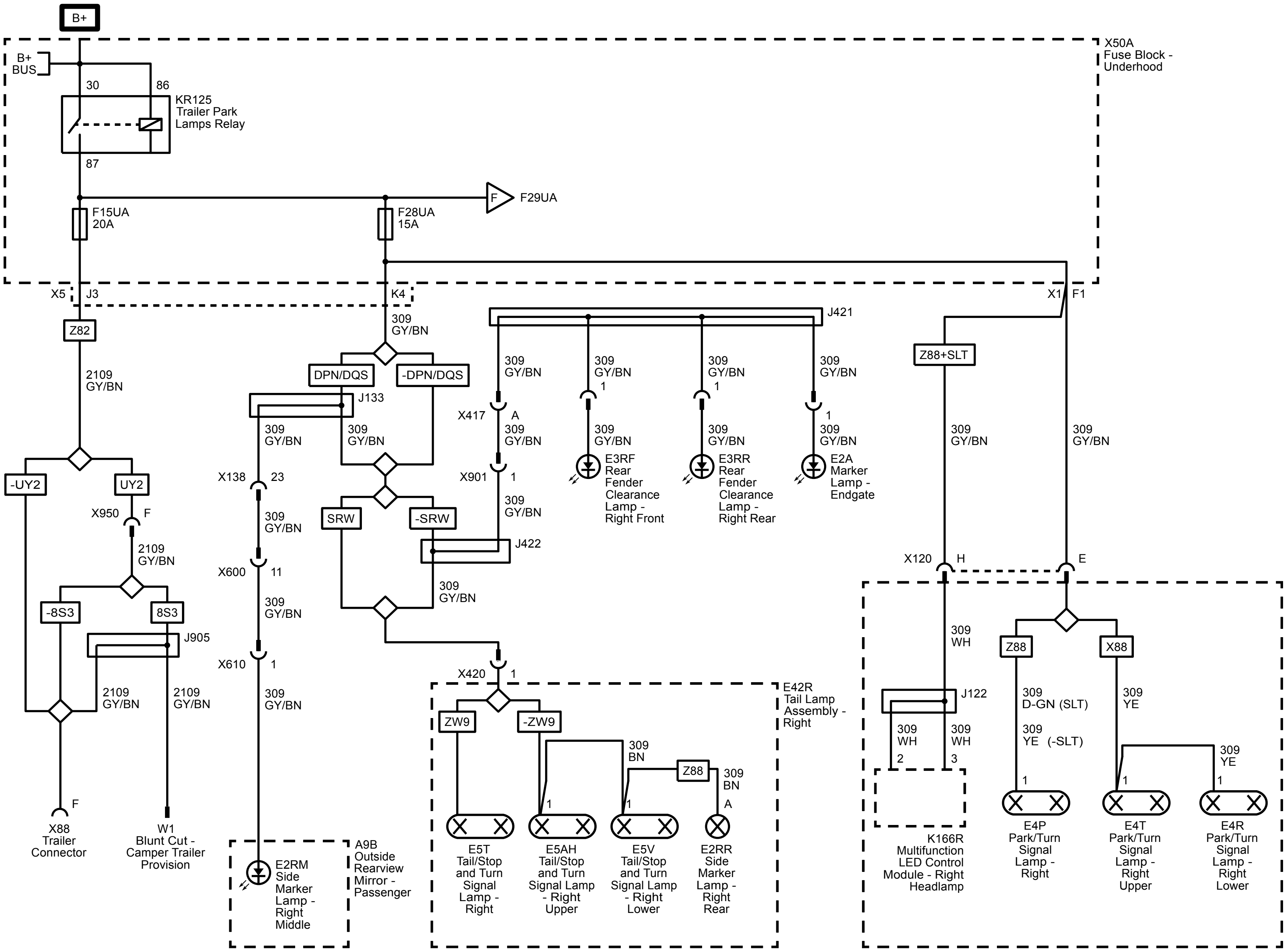
# F6UA, F10UA, F36UA, F48UA and F54UA Fuses (2500/3500)


B+
B+ BUS
X50A Fuse Block - Underhood
KR11 Windshield Washer Pump Relay
KR3 Horn Relay
30
KR5 Rear Defogger Relay
87
F6UA 30A
F54UA 15A
F48UA 15A
F36UA 15A
F10UA 30A
X3 B1
X1 F2
J2
X3 L7
X4 N1
NQF
DL3/DL8/DPN/DQS
C49
2267 BN/YE
J379
1342 RD/GY
2267 BN/YE
2267 BN/YE
293 BN/VT
X2 3
X61A Junction Block - Instrument Panel
X9 11
X500 31
X600 31
228 GY/VT
29 BN/GY
2267 BN/OG
2267 BN/YE
X510 8
X610 8
1
1342 RD/GY
2267 BK
2267 BK
293 BN/VT
X3 C
1
2
X1 A
A9A Outside Rearview Mirror - Driver
X1 A
A9B Outside Rearview Mirror - Passenger
K69 Transfer Case Control Module
G24 Windshield Washer Pump
P12 Horn
E17D Outside Rearview Mirror Glass - Driver
E17P Outside Rearview Mirror Glass - Passenger
E18 Rear Defogger Grid

## F14UA, F17UA and F58UA Fuses (2500/3500)

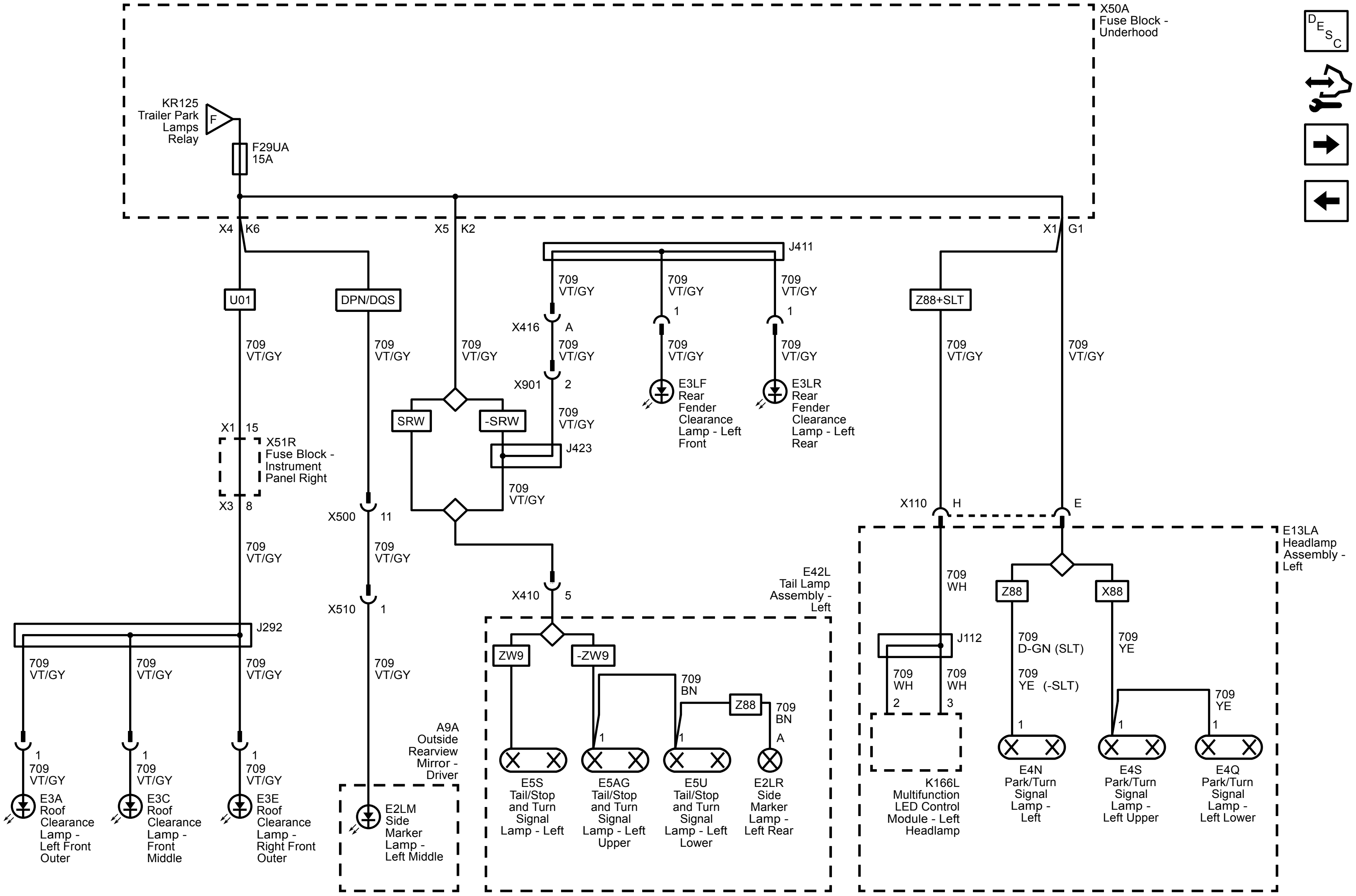

B+
B+ BUS
X50A Fuse Block - Underhood
KR48 Headlamp High Beam Relay
KR63L Trailer Stop/Turn Signal Lamp Relay - Left
KR63R Trailer Stop/Turn Signal Lamp Relay - Right
F58UA 10A
F14UA 10A
F17UA 10A
X1 J4
H4
X5 K5
K6
Z82
Z82
1618 YE/GY
1619 L-GN/VT
-8S3/UY2
8S3/UY2
8S3/UY2
-8S3/UY2
X950 G
D
1618 YE/GY
1619 L-GN/VT
8S3
UY2
UY2
8S3
J901
J902
1618 YE/GY
1618 YE/GY
1619 L-GN/VT
1619 L-GN/VT
W1 Blunt Cut - Camper Trailer Provision
G
D
X88 Trailer Connector
711 WH
311 WH
X110 C
X120 C
Z88
X88
Z88
X88
711 D-BU (SLT)
711 WH (-SLT)
711 L-BU
311 D-BU (SLT)
311 WH (-SLT)
311 L-BU
E13LA Headlamp Assembly - Left
E13RA Headlamp Assembly - Right
5
1
5
1
K81L Headlamp High Beam Control Module - Left
E4E Headlamp - Left High Beam
K81R Headlamp High Beam Control Module - Right
E4F Headlamp - Right High Beam

# F15UA and F28UA Fuses (2500/3500)

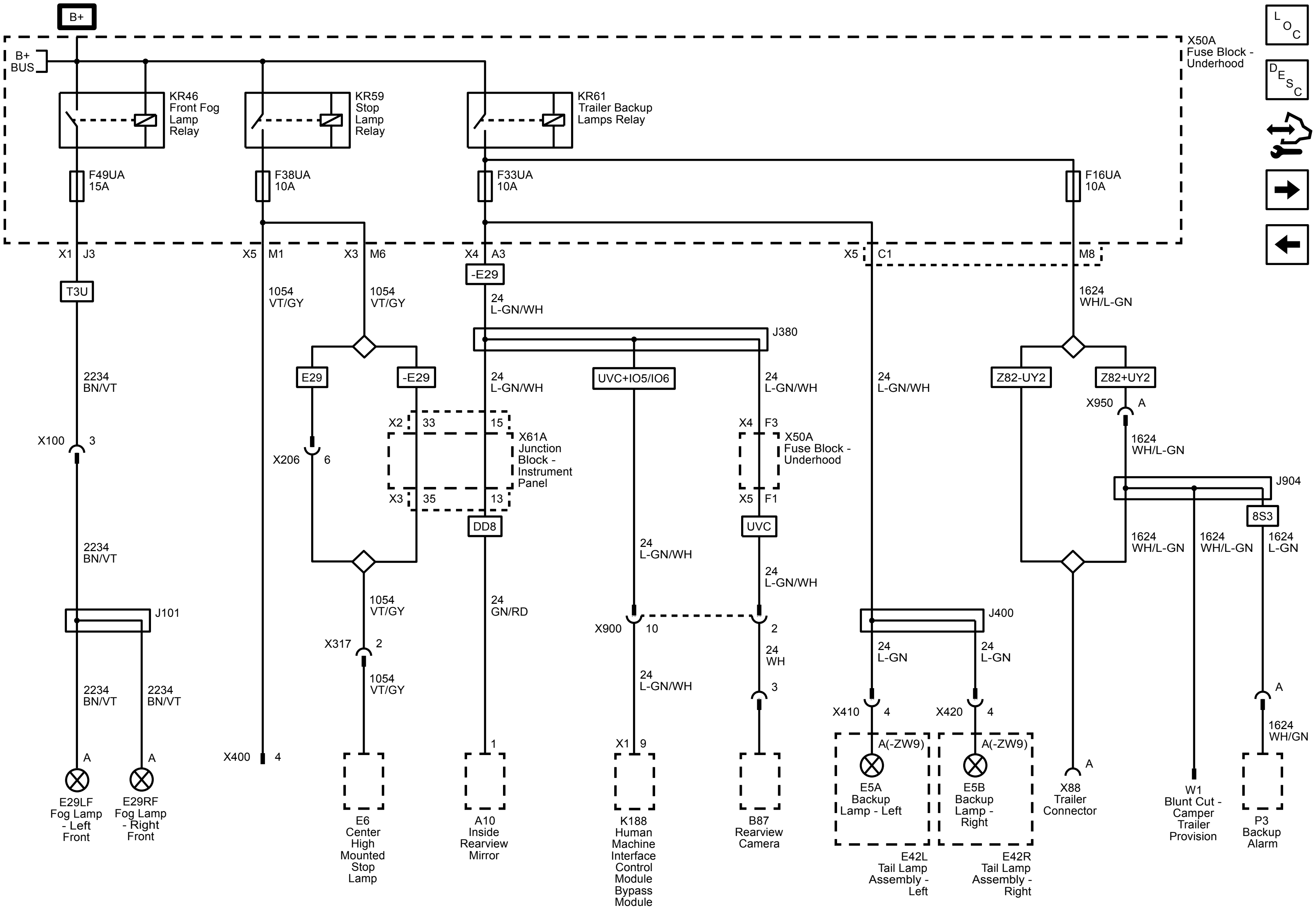


B+
B+ BUS
30
86
KR125 Trailer Park Lamps Relay
87
X50A Fuse Block - Underhood
F
F29UA
F15UA 20A
F28UA 15A
X5
J3
K4
X1
F1
Z82
2109 GY/BN
309 GY/BN
DPN/DQS
-DPN/DQS
J133
J421
309 GY/BN
309 GY/BN 1
309 GY/BN 1
309 GY/BN
X417
A
1
1
309 GY/BN
E3RF Rear Fender Clearance Lamp - Right Front
E3RR Rear Fender Clearance Lamp - Right Rear
E2A Marker Lamp - Endgate
Z88+SLT
309 GY/BN
309 GY/BN
-UY2
UY2
X950
F
2109 GY/BN
X138
23
309 GY/BN
X901
1
SRW
-SRW
J422
X600
11
309 GY/BN
-8S3
8S3
J905
X610
1
2109 GY/BN
2109 GY/BN
309 GY/BN
X420
1
E42R Tail Lamp Assembly - Right
ZW9
-ZW9
309 BN
Z88
309 BN
A
1
1
X88 Trailer Connector
F
W1 Blunt Cut - Camper Trailer Provision
E2RM Side Marker Lamp - Right Middle
A9B Outside Rearview Mirror - Passenger
E5T Tail/Stop and Turn Signal Lamp - Right
E5AH Tail/Stop and Turn Signal Lamp - Right Upper
E5V Tail/Stop and Turn Signal Lamp - Right Lower
E2RR Side Marker Lamp - Right Rear
X120
H
E
E13RA Headlamp Assembly - Right
309 WH
Z88
X88
J122
309 D-GN (SLT)
309 YE (-SLT)
309 YE
309 WH 2
309 WH 3
309 YE
1
1
1
K166R Multifunction LED Control Module - Right Headlamp
E4P Park/Turn Signal Lamp - Right
E4T Park/Turn Signal Lamp - Right Upper
E4R Park/Turn Signal Lamp - Right Lower

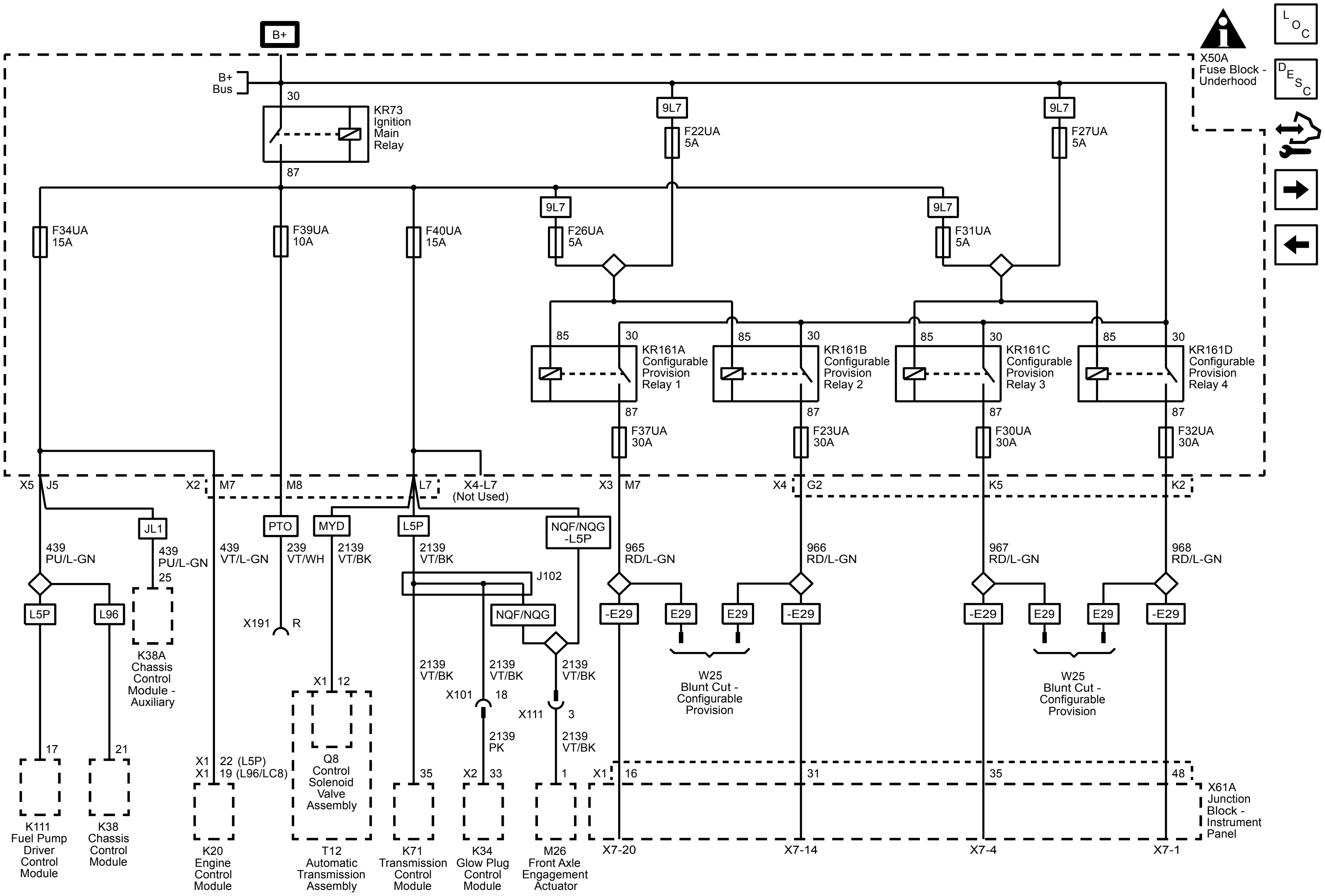
## F29UA Fuse (2500/3500)


X50A
Fuse Block -
Underhood
KR125
Trailer Park
Lamps
Relay
F
F29UA
15A
X4
K6
X5
K2
X1
G1
U01
DPN/DQS
J411
Z88+SLT
709
VT/GY
X416
A
X901
2
1
SRW
-SRW
J423
E3LF
Rear
Fender
Clearance
Lamp - Left
Front
E3LR
Rear
Fender
Clearance
Lamp - Left
Rear
X1
15
X51R
Fuse Block -
Instrument
Panel Right
X3
8
X500
11
X510
1
X410
5
X110
H
E
E13LA
Headlamp
Assembly -
Left
E42L
Tail Lamp
Assembly -
Left
J292
709
WH
J112
Z88
X88
709
D-GN (SLT)
709
YE (-SLT)
709
YE
ZW9
-ZW9
709
BN
Z88
A
2
3
A9A
Outside
Rearview
Mirror -
Driver
E2LM
Side
Marker
Lamp -
Left Middle
E3A
Roof
Clearance
Lamp -
Left Front
Outer
E3C
Roof
Clearance
Lamp -
Front
Middle
E3E
Roof
Clearance
Lamp -
Right Front
Outer
E5S
Tail/Stop
and Turn
Signal
Lamp - Left
E5AG
Tail/Stop
and Turn
Signal
Lamp - Left
Upper
E5U
Tail/Stop
and Turn
Signal
Lamp - Left
Lower
E2LR
Side
Marker
Lamp -
Left Rear
K166L
Multifunction
LED Control
Module - Left
Headlamp
E4N
Park/Turn
Signal
Lamp -
Left
E4S
Park/Turn
Signal
Lamp -
Left Upper
E4Q
Park/Turn
Signal
Lamp -
Left Lower

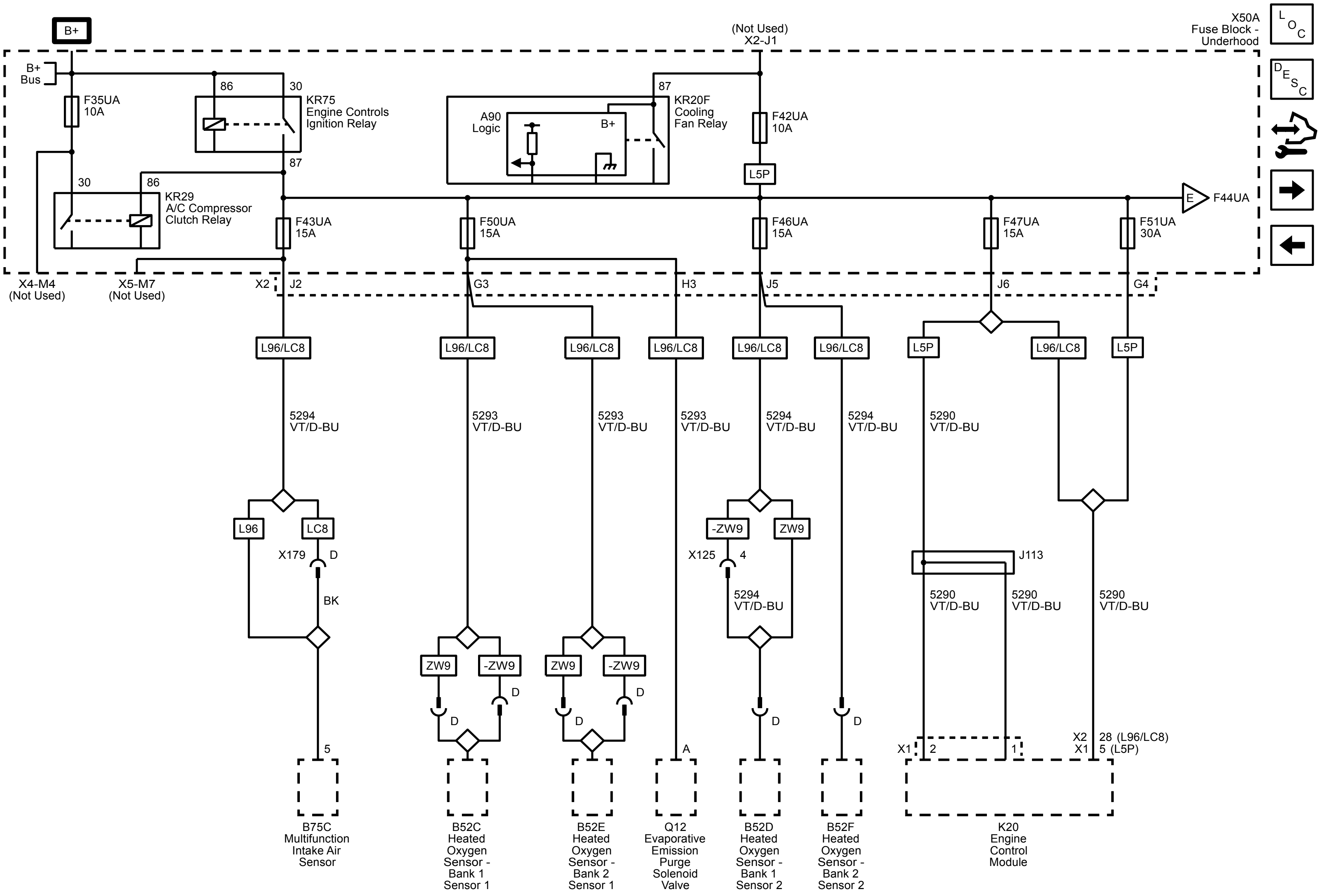
## F16UA, F33UA, F38UA and F49UA Fuses (2500/3500)


B+
B+ BUS
X50A Fuse Block - Underhood
KR46 Front Fog Lamp Relay
KR59 Stop Lamp Relay
KR61 Trailer Backup Lamps Relay
F49UA 15A
F38UA 10A
F33UA 10A
F16UA 10A
X1 J3
X5 M1
X3 M6
X4 A3
X5 C1
M8
T3U
-E29
2234 BN/VT
1054 VT/GY
24 L-GN/WH
J380
1624 WH/L-GN
E29
-E29
UVC+IO5/IO6
Z82-UY2
Z82+UY2
X950 A
X100 3
X206 6
X2 33 15
X61A Junction Block - Instrument Panel
X3 35 13
X4 F3
X5 F1
J904
8S3
DD8
UVC
1624 L-GN
J101
24 GN/RD
X900 10
2
24 WH
3
J400
24 L-GN
X317 2
X410 4
X420 4
A
1624 WH/GN
X400 4
1
X1 9
A(-ZW9)
E29LF Fog Lamp - Left Front
E29RF Fog Lamp - Right Front
E6 Center High Mounted Stop Lamp
A10 Inside Rearview Mirror
K188 Human Machine Interface Control Module Bypass Module
B87 Rearview Camera
E5A Backup Lamp - Left
E5B Backup Lamp - Right
E42L Tail Lamp Assembly - Left
E42R Tail Lamp Assembly - Right
X88 Trailer Connector
W1 Blunt Cut - Camper Trailer Provision
P3 Backup Alarm
LOC
DESC

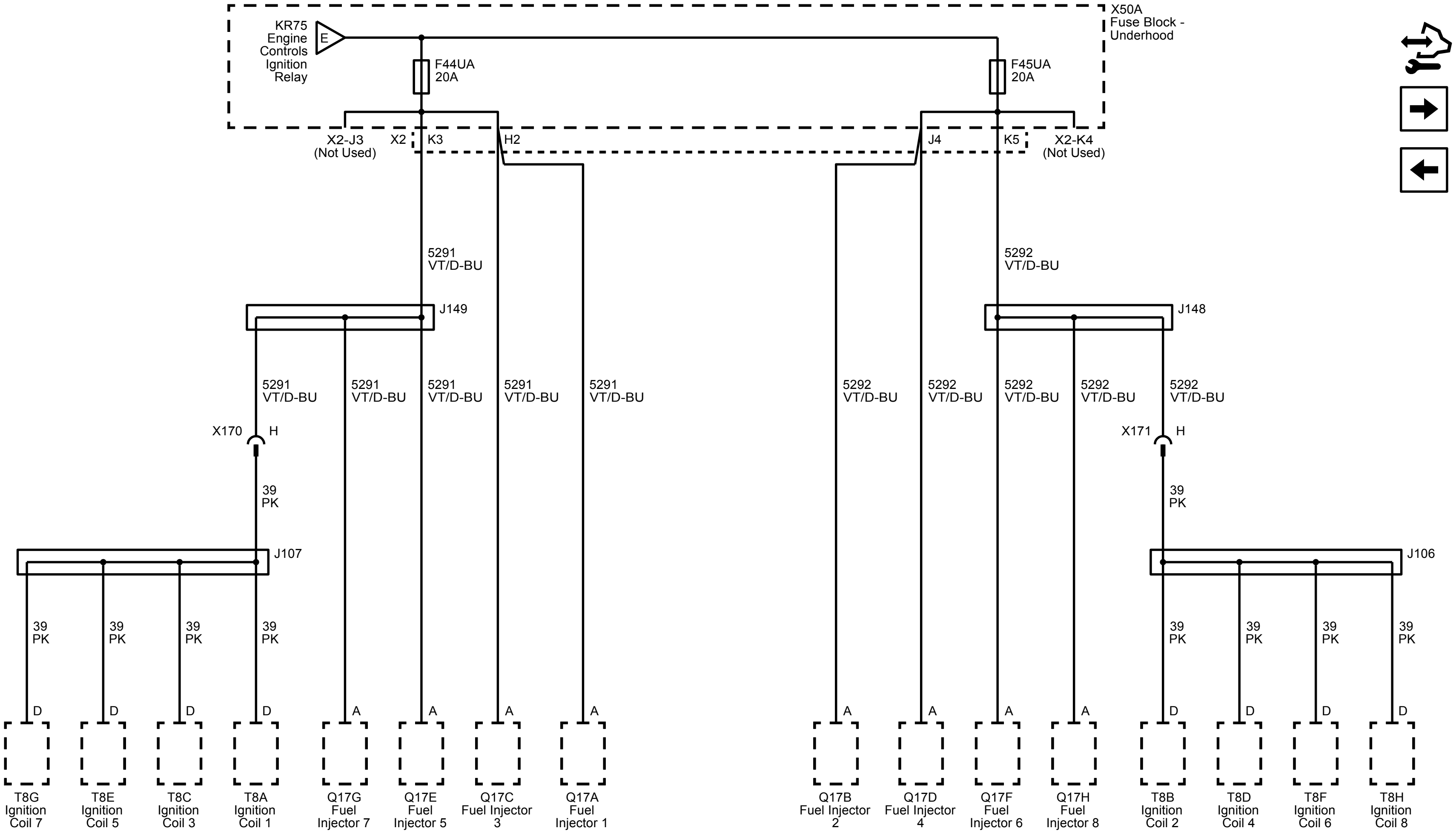
## F22UA, F23UA, F26UA, F27UA, F30UA, F31UA, F32UA, F34UA, F37UA, F39UA and F40UA Fuses (2500/3500)


B+
B+ Bus
30
KR73 Ignition Main Relay
87
9L7
F22UA 5A
9L7
F27UA 5A
X50A Fuse Block - Underhood
F34UA 15A
F39UA 10A
F40UA 15A
9L7
F26UA 5A
9L7
F31UA 5A
85
30
KR161A Configurable Provision Relay 1
87
F37UA 30A
85
30
KR161B Configurable Provision Relay 2
87
F23UA 30A
85
30
KR161C Configurable Provision Relay 3
87
F30UA 30A
85
30
KR161D Configurable Provision Relay 4
87
F32UA 30A
X5
J5
X2
M7
M8
L7
X4-L7 (Not Used)
X3
M7
X4
G2
K5
K2
JL1
PTO
MYD
L5P
NQF/NQG -L5P
439 PU/L-GN
439 PU/L-GN
25
439 VT/L-GN
239 VT/WH
2139 VT/BK
2139 VT/BK
J102
965 RD/L-GN
966 RD/L-GN
967 RD/L-GN
968 RD/L-GN
L5P
L96
K38A Chassis Control Module - Auxiliary
X191
R
NQF/NQG
-E29
E29
E29
-E29
-E29
E29
E29
-E29
W25 Blunt Cut - Configurable Provision
W25 Blunt Cut - Configurable Provision
2139 VT/BK
2139 VT/BK
2139 VT/BK
X101
18
X111
3
X1
12
2139 PK
2139 VT/BK
17
21
X1 22 (L5P)
X1 19 (L96/LC8)
Q8 Control Solenoid Valve Assembly
35
X2 33
1
X1
16
31
35
48
X61A Junction Block - Instrument Panel
K111 Fuel Pump Driver Control Module
K38 Chassis Control Module
K20 Engine Control Module
T12 Automatic Transmission Assembly
K71 Transmission Control Module
K34 Glow Plug Control Module
M26 Front Axle Engagement Actuator
X7-20
X7-14
X7-4
X7-1
L O C
D E S C

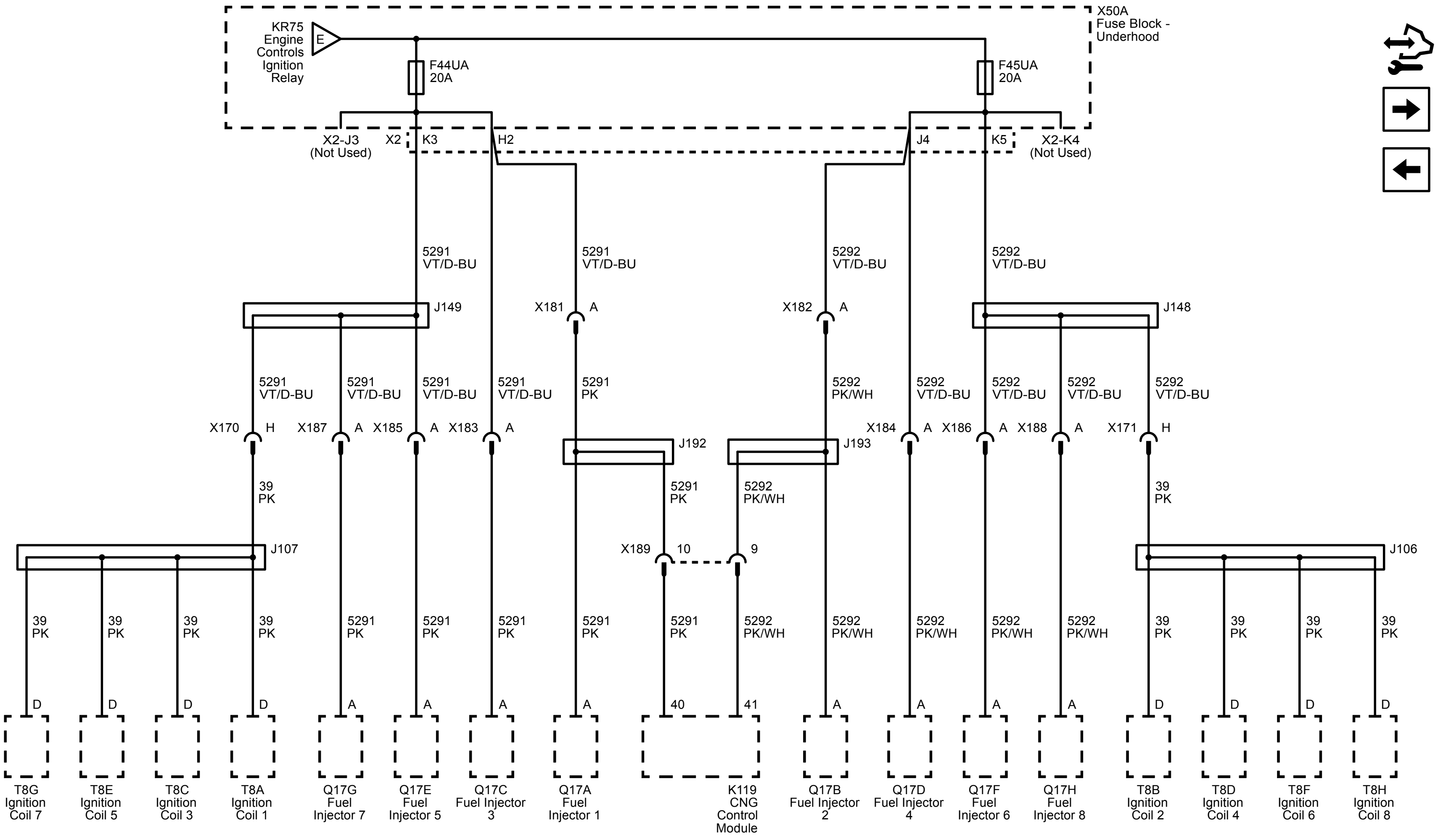
## F35UA, F42UA, F43UA, F46UA, F47UA, F50UA and F51UA Fuses (2500/3500)


B+
B+ Bus
(Not Used)
X2-J1
X50A
Fuse Block -
Underhood
L O C
D E S C
F35UA
10A
86
30
KR75
Engine Controls
Ignition Relay
87
A90
Logic
B+
87
KR20F
Cooling
Fan Relay
F42UA
10A
L5P
30
86
KR29
A/C Compressor
Clutch Relay
E
F44UA
F43UA
15A
F50UA
15A
F46UA
15A
F47UA
15A
F51UA
30A
X4-M4
(Not Used)
X5-M7
(Not Used)
X2
J2
G3
H3
J5
J6
G4
L96/LC8
L96/LC8
L96/LC8
L96/LC8
L96/LC8
L96/LC8
L5P
L96/LC8
L5P
5294
VT/D-BU
5293
VT/D-BU
5293
VT/D-BU
5293
VT/D-BU
5294
VT/D-BU
5294
VT/D-BU
5290
VT/D-BU
L96
LC8
X179
D
BK
-ZW9
ZW9
X125
4
5294
VT/D-BU
J113
5290
VT/D-BU
5290
VT/D-BU
5290
VT/D-BU
ZW9
-ZW9
D
D
ZW9
-ZW9
D
D
D
D
5
A
X2
28 (L96/LC8)
X1
2
1
X1
5 (L5P)
B75C
Multifunction
Intake Air
Sensor
B52C
Heated
Oxygen
Sensor -
Bank 1
Sensor 1
B52E
Heated
Oxygen
Sensor -
Bank 2
Sensor 1
Q12
Evaporative
Emission
Purge
Solenoid
Valve
B52D
Heated
Oxygen
Sensor -
Bank 1
Sensor 2
B52F
Heated
Oxygen
Sensor -
Bank 2
Sensor 2
K20
Engine
Control
Module

## F43UA and F44UA Fuses (2500/3500 with L96)

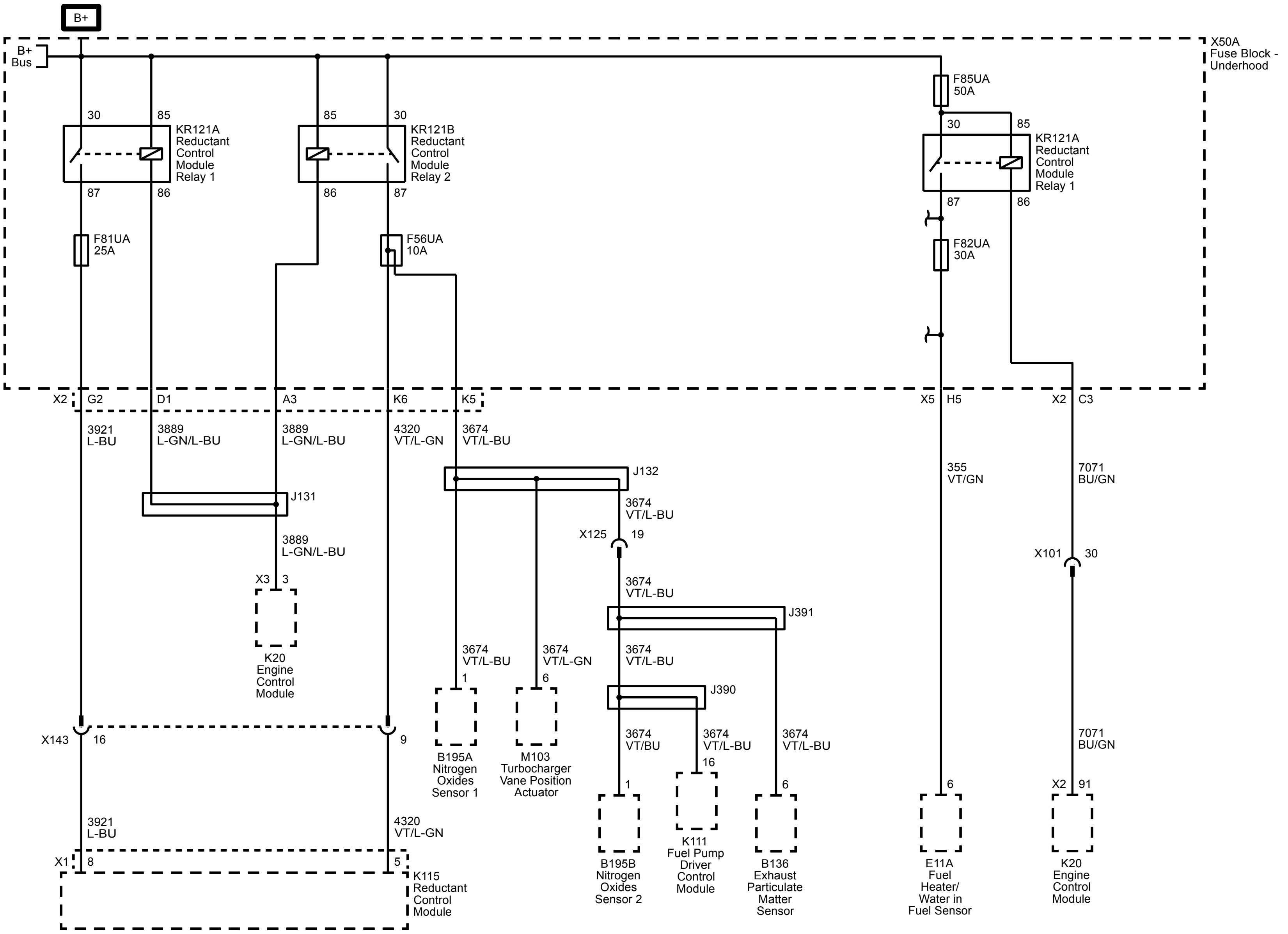

X50A
Fuse Block - Underhood
KR75
Engine Controls Ignition Relay
E
F44UA
20A
F45UA
20A
X2-J3
(Not Used)
X2
K3
H2
J4
K5
X2-K4
(Not Used)
5291
VT/D-BU
5292
VT/D-BU
J149
J148
5291 VT/D-BU
5291 VT/D-BU
5291 VT/D-BU
5291 VT/D-BU
5291 VT/D-BU
5292 VT/D-BU
5292 VT/D-BU
5292 VT/D-BU
5292 VT/D-BU
5292 VT/D-BU
X170
H
X171
H
39
PK
39
PK
J107
J106
39 PK
39 PK
39 PK
39 PK
39 PK
39 PK
39 PK
39 PK
D
D
D
D
A
A
A
A
A
A
A
A
D
D
D
D
T8G Ignition Coil 7
T8E Ignition Coil 5
T8C Ignition Coil 3
T8A Ignition Coil 1
Q17G Fuel Injector 7
Q17E Fuel Injector 5
Q17C Fuel Injector 3
Q17A Fuel Injector 1
Q17B Fuel Injector 2
Q17D Fuel Injector 4
Q17F Fuel Injector 6
Q17H Fuel Injector 8
T8B Ignition Coil 2
T8D Ignition Coil 4
T8F Ignition Coil 6
T8H Ignition Coil 8

# F43UA and F44UA Fuses (2500/3500 with LC8)

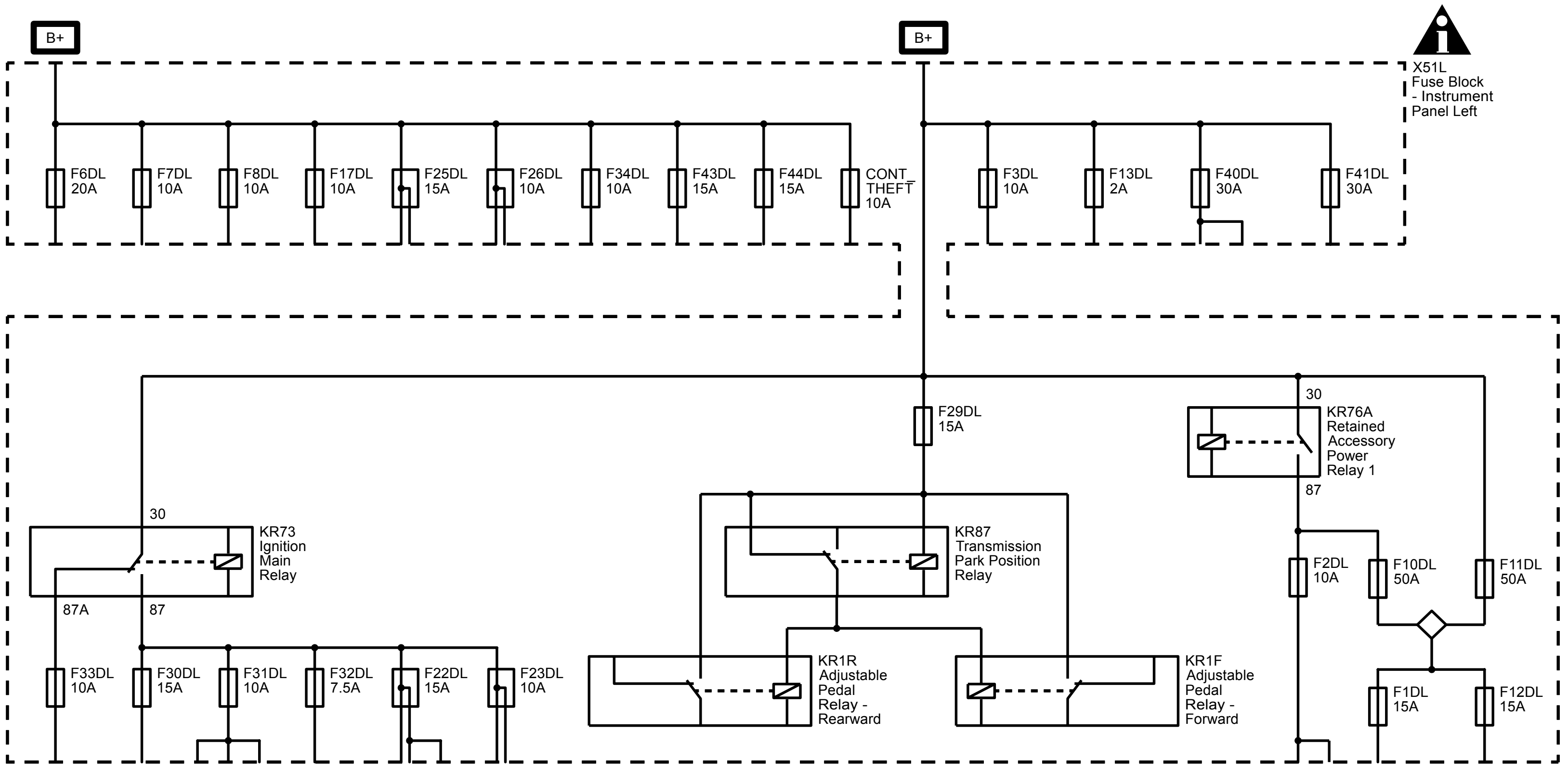


X50A Fuse Block - Underhood
KR75 Engine Controls Ignition Relay
E
F44UA 20A
F45UA 20A
X2-J3 (Not Used)
X2
K3
H2
J4
K5
X2-K4 (Not Used)
5291 VT/D-BU
5291 VT/D-BU
5292 VT/D-BU
5292 VT/D-BU
J149
X181
A
X182
A
J148
5291 VT/D-BU
5291 VT/D-BU
5291 VT/D-BU
5291 VT/D-BU
5291 PK
5292 PK/WH
5292 VT/D-BU
5292 VT/D-BU
5292 VT/D-BU
5292 VT/D-BU
X170
H
X187
A
X185
A
X183
A
J192
J193
X184
A
X186
A
X188
A
X171
H
39 PK
5291 PK
5292 PK/WH
39 PK
J107
X189
10
9
J106
39 PK
39 PK
39 PK
39 PK
5291 PK
5291 PK
5291 PK
5291 PK
5291 PK
5292 PK/WH
5292 PK/WH
5292 PK/WH
5292 PK/WH
5292 PK/WH
39 PK
39 PK
39 PK
39 PK
D
D
D
D
A
A
A
A
40
41
A
A
A
A
D
D
D
D
T8G Ignition Coil 7
T8E Ignition Coil 5
T8C Ignition Coil 3
T8A Ignition Coil 1
Q17G Fuel Injector 7
Q17E Fuel Injector 5
Q17C Fuel Injector 3
Q17A Fuel Injector 1
K119 CNG Control Module
Q17B Fuel Injector 2
Q17D Fuel Injector 4
Q17F Fuel Injector 6
Q17H Fuel Injector 8
T8B Ignition Coil 2
T8D Ignition Coil 4
T8F Ignition Coil 6
T8H Ignition Coil 8

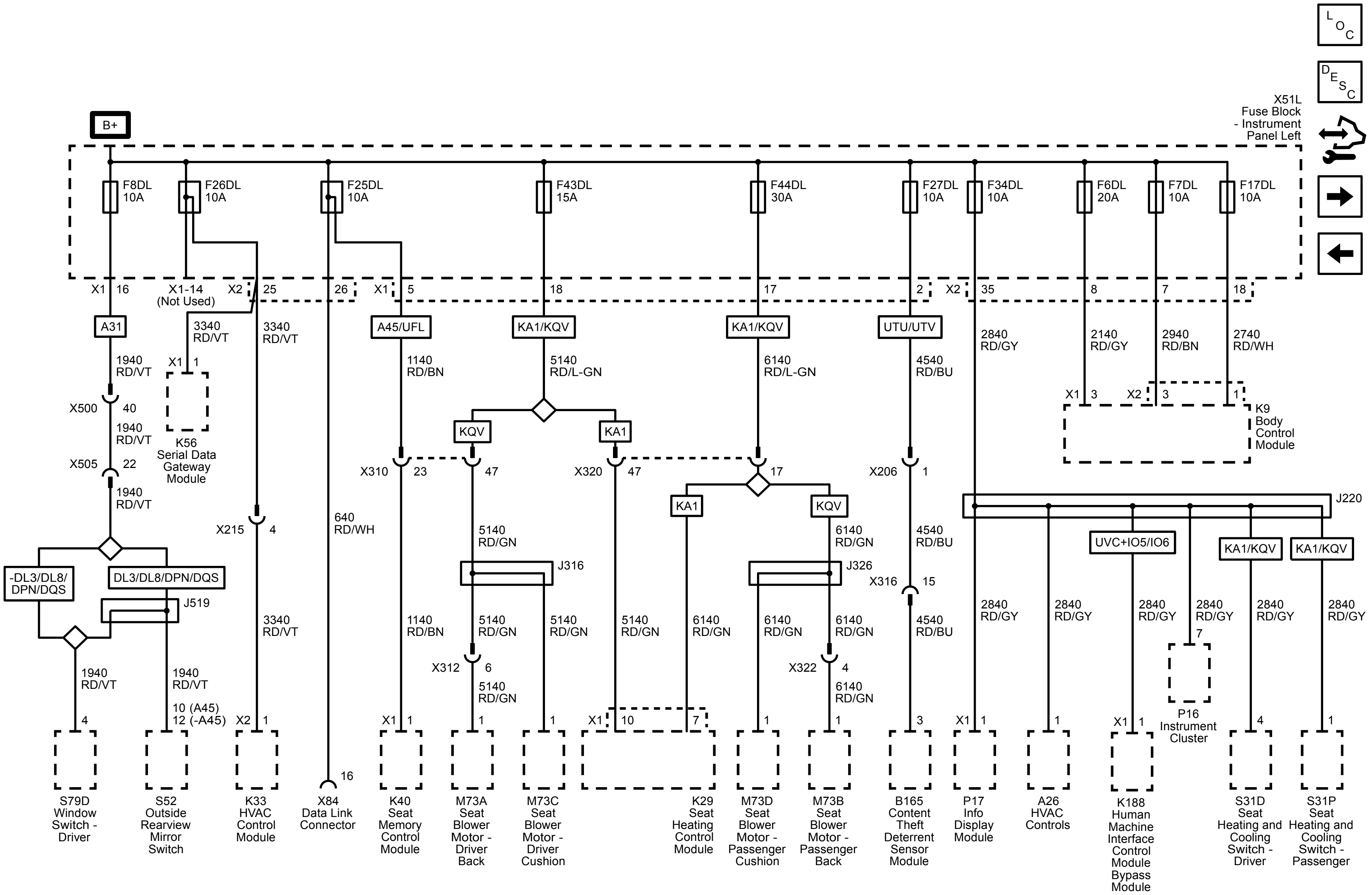
# F56UA, F81UA, F82UA, and F85UA Fuses (L5P)


B+
B+ Bus
X50A Fuse Block - Underhood
30
85
KR121A Reductant Control Module Relay 1
87
86
85
30
KR121B Reductant Control Module Relay 2
86
87
F81UA 25A
F56UA 10A
F85UA 50A
30
85
KR121A Reductant Control Module Relay 1
87
86
F82UA 30A
X2
G2
D1
A3
K6
K5
X5
H5
X2
C3
3921 L-BU
3889 L-GN/L-BU
3889 L-GN/L-BU
4320 VT/L-GN
3674 VT/L-BU
J132
355 VT/GN
7071 BU/GN
J131
3674 VT/L-BU
X125
19
3889 L-GN/L-BU
X101
30
X3
3
K20 Engine Control Module
3674 VT/L-BU
J391
3674 VT/L-BU
3674 VT/L-GN
3674 VT/L-BU
1
6
J390
X143
16
9
B195A Nitrogen Oxides Sensor 1
M103 Turbocharger Vane Position Actuator
3674 VT/BU
3674 VT/L-BU
3674 VT/L-BU
7071 BU/GN
16
1
6
6
X2
91
3921 L-BU
4320 VT/L-GN
X1
8
5
K115 Reductant Control Module
B195B Nitrogen Oxides Sensor 2
K111 Fuel Pump Driver Control Module
B136 Exhaust Particulate Matter Sensor
E11A Fuel Heater/ Water in Fuel Sensor
K20 Engine Control Module

# B+ Bus X51L Fuse Block - Instrument Panel Left (2500/3500)

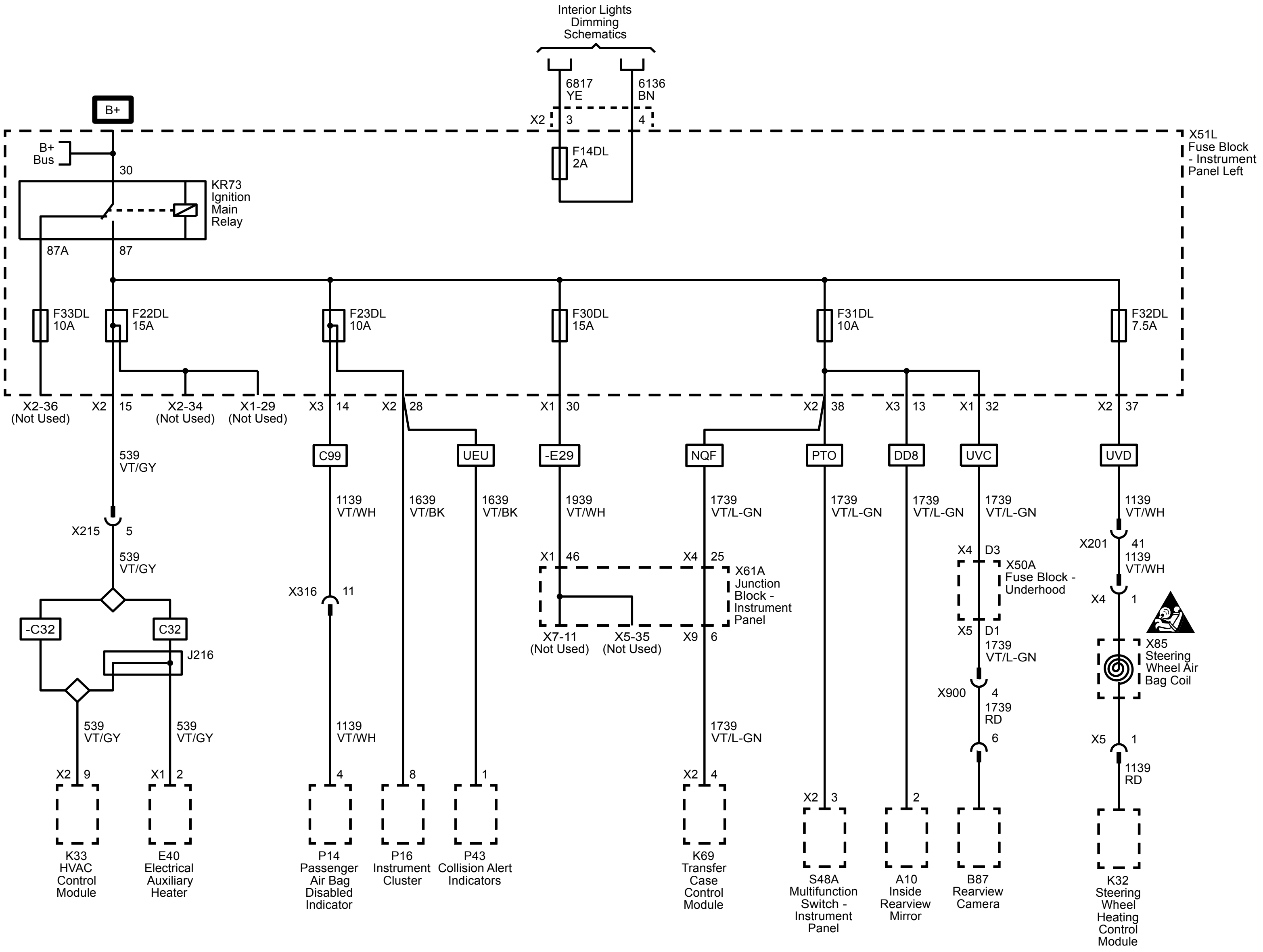

B+
B+
X51L
Fuse Block
- Instrument
Panel Left
F6DL
20A
F7DL
10A
F8DL
10A
F17DL
10A
F25DL
15A
F26DL
10A
F34DL
10A
F43DL
15A
F44DL
15A
CONT_
THEFT
10A
F3DL
10A
F13DL
2A
F40DL
30A
F41DL
30A
F29DL
15A
30
KR76A
Retained
Accessory
Power
Relay 1
87
30
KR73
Ignition
Main
Relay
87A
87
KR87
Transmission
Park Position
Relay
F2DL
10A
F10DL
50A
F11DL
50A
F33DL
10A
F30DL
15A
F31DL
10A
F32DL
7.5A
F22DL
15A
F23DL
10A
KR1R
Adjustable
Pedal
Relay -
Rearward
KR1F
Adjustable
Pedal
Relay -
Forward
F1DL
15A
F12DL
15A

# F6DL, F7DL, F8DL, F17DL, F25DL, F26DL, F34DL, F43DL and F44DL Fuses (2500/3500)

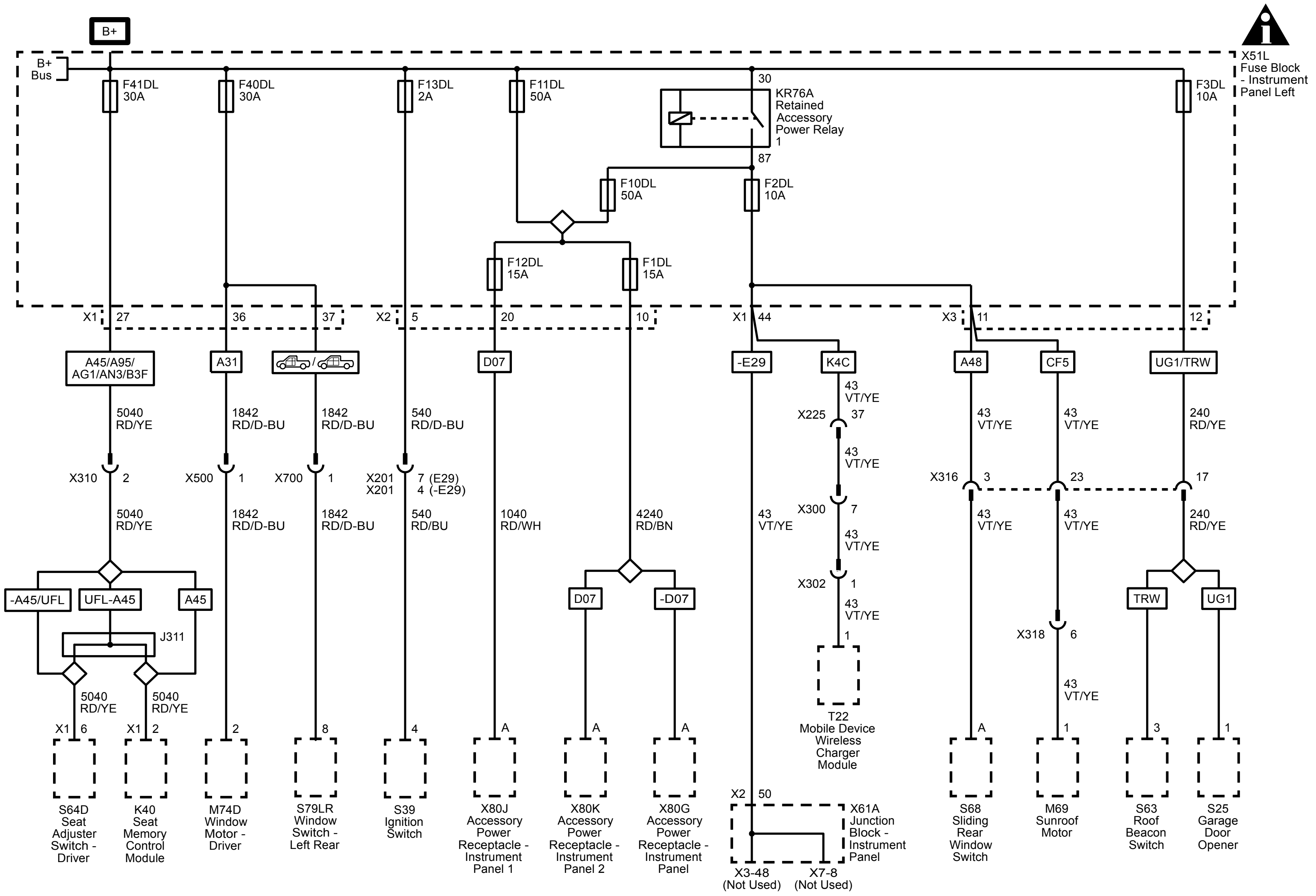


LOC
DESC
X51L Fuse Block - Instrument Panel Left
B+
F8DL 10A
F26DL 10A
F25DL 10A
F43DL 15A
F44DL 30A
F27DL 10A
F34DL 10A
F6DL 20A
F7DL 10A
F17DL 10A
X1 16
X1-14 (Not Used)
X2 25
26
X1 5
18
17
2
X2 35
8
7
18
A31
1940 RD/VT
X500 40
1940 RD/VT
X505 22
1940 RD/VT
-DL3/DL8/ DPN/DQS
DL3/DL8/DPN/DQS
J519
1940 RD/VT
1940 RD/VT
10 (A45)
12 (-A45)
4
S79D Window Switch - Driver
S52 Outside Rearview Mirror Switch
3340 RD/VT
X1 1
K56 Serial Data Gateway Module
3340 RD/VT
X215 4
3340 RD/VT
X2 1
K33 HVAC Control Module
640 RD/WH
16
X84 Data Link Connector
A45/UFL
1140 RD/BN
X310 23
1140 RD/BN
X1 1
K40 Seat Memory Control Module
KA1/KQV
5140 RD/L-GN
KQV
KA1
47
5140 RD/GN
J316
5140 RD/GN
5140 RD/GN
X312 6
5140 RD/GN
1
1
M73A Seat Blower Motor - Driver Back
M73C Seat Blower Motor - Driver Cushion
X320 47
5140 RD/GN
X1 10
7
K29 Seat Heating Control Module
KA1/KQV
6140 RD/L-GN
17
KA1
KQV
6140 RD/GN
J326
6140 RD/GN
6140 RD/GN
6140 RD/GN
X322 4
6140 RD/GN
1
1
M73D Seat Blower Motor - Passenger Cushion
M73B Seat Blower Motor - Passenger Back
UTU/UTV
4540 RD/BU
X206 1
4540 RD/BU
X316 15
4540 RD/BU
3
B165 Content Theft Deterrent Sensor Module
2840 RD/GY
2140 RD/GY
2940 RD/BN
2740 RD/WH
X1 3
X2 3
1
K9 Body Control Module
J220
UVC+IO5/IO6
KA1/KQV
KA1/KQV
2840 RD/GY
2840 RD/GY
2840 RD/GY
2840 RD/GY
2840 RD/GY
2840 RD/GY
X1 1
P17 Info Display Module
1
A26 HVAC Controls
X1 1
K188 Human Machine Interface Control Module Bypass Module
7
P16 Instrument Cluster
4
S31D Seat Heating and Cooling Switch - Driver
1
S31P Seat Heating and Cooling Switch - Passenger

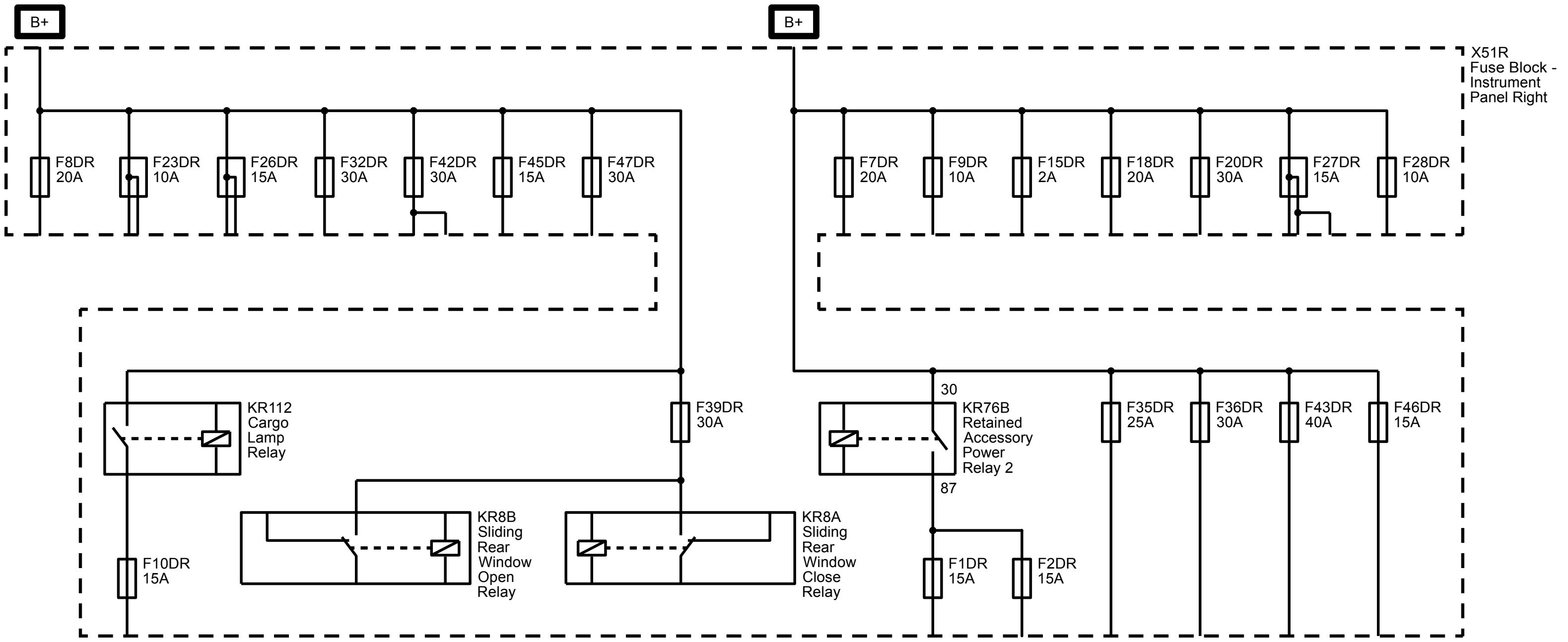
# F14DL, F22DL, F23DL, F30DL, F31DL, F32DL and F33DL Fuses (2500/3500)


Interior Lights Dimming Schematics
6817 YE
6136 BN
X2
3
4
F14DL 2A
B+
B+ Bus
30
KR73 Ignition Main Relay
87A
87
X51L Fuse Block - Instrument Panel Left
F33DL 10A
F22DL 15A
F23DL 10A
F30DL 15A
F31DL 10A
F32DL 7.5A
X2-36 (Not Used)
X2 15
X2-34 (Not Used)
X1-29 (Not Used)
X3 14
X2 28
X1 30
X2 38
X3 13
X1 32
X2 37
C99
UEU
-E29
NQF
PTO
DD8
UVC
UVD
539 VT/GY
X215 5
539 VT/GY
-C32
C32
J216
539 VT/GY
539 VT/GY
X2 9
X1 2
K33 HVAC Control Module
E40 Electrical Auxiliary Heater
1139 VT/WH
X316 11
1139 VT/WH
4
P14 Passenger Air Bag Disabled Indicator
1639 VT/BK
8
P16 Instrument Cluster
1639 VT/BK
1
P43 Collision Alert Indicators
1939 VT/WH
X1 46
X4 25
X61A Junction Block - Instrument Panel
X7-11 (Not Used)
X5-35 (Not Used)
X9 6
1739 VT/L-GN
1739 VT/L-GN
X2 4
K69 Transfer Case Control Module
1739 VT/L-GN
X2 3
S48A Multifunction Switch - Instrument Panel
1739 VT/L-GN
2
A10 Inside Rearview Mirror
1739 VT/L-GN
X4 D3
X50A Fuse Block - Underhood
X5 D1
1739 VT/L-GN
X900 4
1739 RD
6
B87 Rearview Camera
1139 VT/WH
X201 41
1139 VT/WH
X4 1
X85 Steering Wheel Air Bag Coil
X5 1
1139 RD
K32 Steering Wheel Heating Control Module

## F1DL, F2DL, F3DL, F10DL, F11DL, F12DL, F13DL, F40DL and F41DL Fuses (2500/3500)

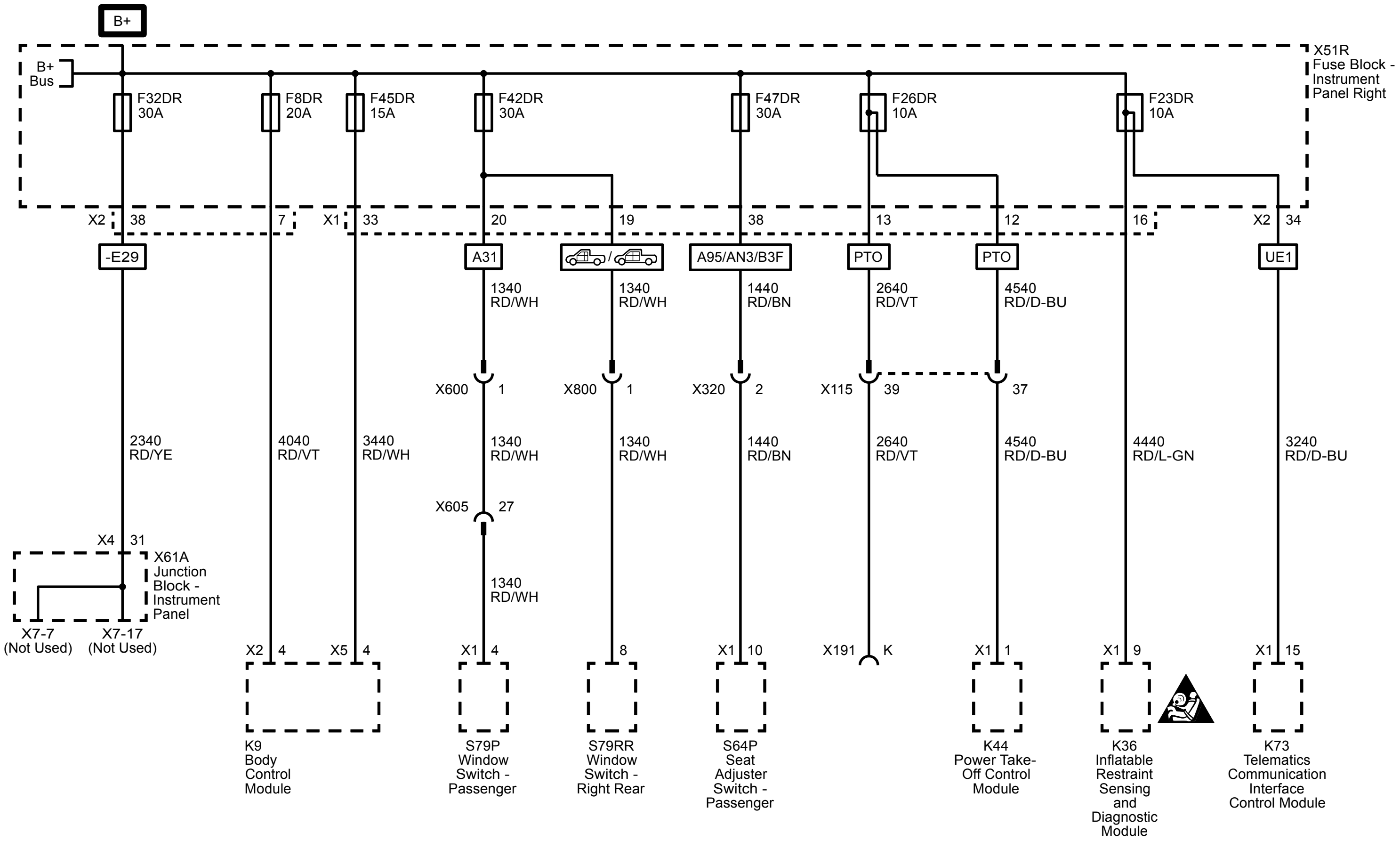


B+
B+ Bus
F41DL 30A
F40DL 30A
F13DL 2A
F11DL 50A
30
KR76A Retained Accessory Power Relay
1
87
F10DL 50A
F2DL 10A
F12DL 15A
F1DL 15A
F3DL 10A
X51L Fuse Block - Instrument Panel Left
X1 27
36
37
X2 5
20
10
X1 44
X3 11
12
A45/A95/ AG1/AN3/B3F
A31
D07
-E29
K4C
A48
CF5
UG1/TRW
5040 RD/YE
1842 RD/D-BU
1842 RD/D-BU
540 RD/D-BU
43 VT/YE
X225 37
43 VT/YE
43 VT/YE
240 RD/YE
X310 2
X500 1
X700 1
X201 7 (E29)
X201 4 (-E29)
X316 3
23
17
5040 RD/YE
1842 RD/D-BU
1842 RD/D-BU
540 RD/BU
1040 RD/WH
4240 RD/BN
43 VT/YE
X300 7
43 VT/YE
43 VT/YE
43 VT/YE
240 RD/YE
X302 1
43 VT/YE
-A45/UFL
UFL-A45
A45
D07
-D07
TRW
UG1
J311
X318 6
1
43 VT/YE
T22 Mobile Device Wireless Charger Module
5040 RD/YE
5040 RD/YE
X1 6
X1 2
2
8
4
A
A
A
A
1
3
1
S64D Seat Adjuster Switch - Driver
K40 Seat Memory Control Module
M74D Window Motor - Driver
S79LR Window Switch - Left Rear
S39 Ignition Switch
X80J Accessory Power Receptacle - Instrument Panel 1
X80K Accessory Power Receptacle - Instrument Panel 2
X80G Accessory Power Receptacle - Instrument Panel
X2 50
X61A Junction Block - Instrument Panel
X3-48 (Not Used)
X7-8 (Not Used)
S68 Sliding Rear Window Switch
M69 Sunroof Motor
S63 Roof Beacon Switch
S25 Garage Door Opener

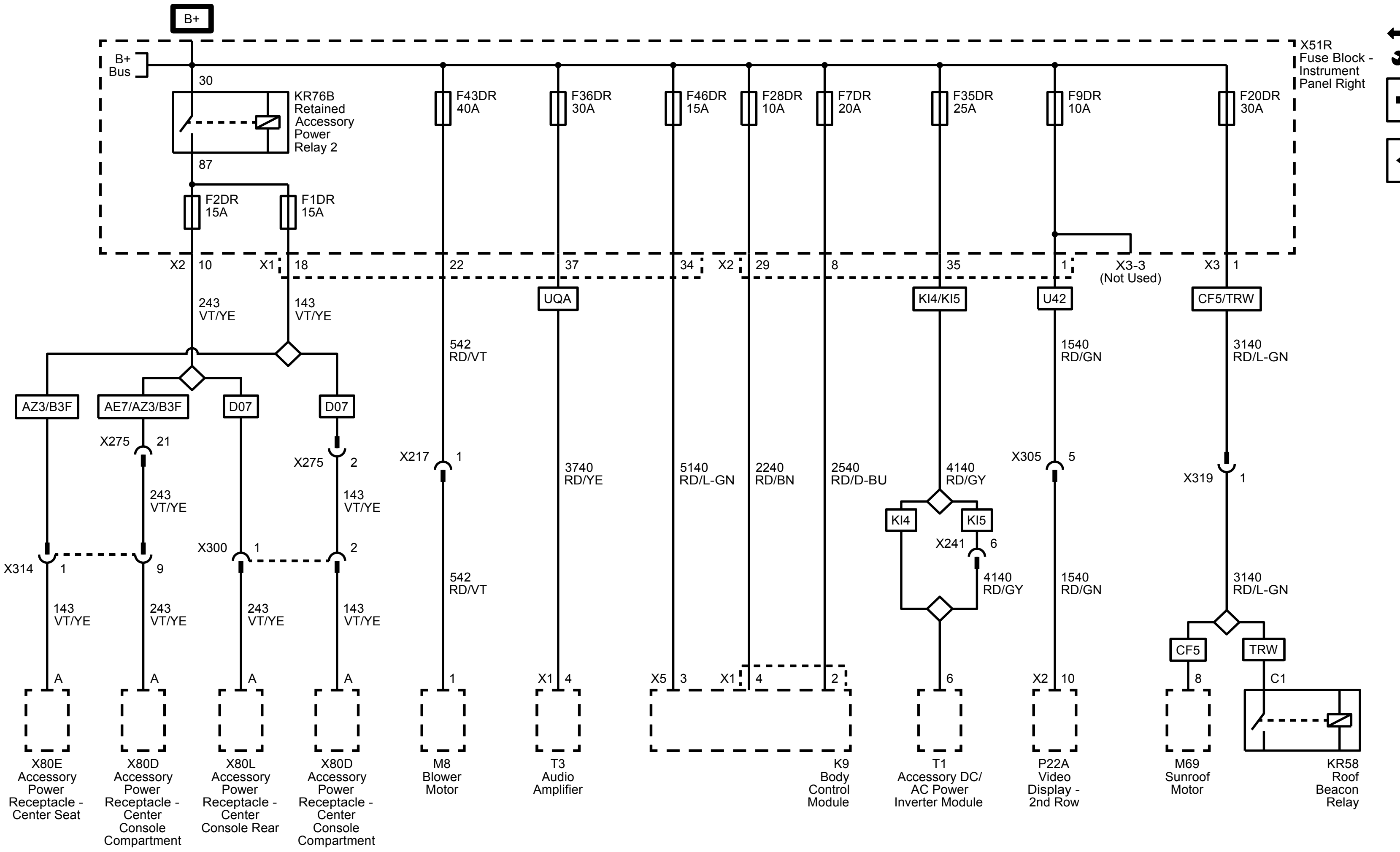

B+
B+
X51R
Fuse Block -
Instrument
Panel Right
F8DR
20A
F23DR
10A
F26DR
15A
F32DR
30A
F42DR
30A
F45DR
15A
F47DR
30A
F7DR
20A
F9DR
10A
F15DR
2A
F18DR
20A
F20DR
30A
F27DR
15A
F28DR
10A
KR112
Cargo
Lamp
Relay
F39DR
30A
30
KR76B
Retained
Accessory
Power
Relay 2
87
F35DR
25A
F36DR
30A
F43DR
40A
F46DR
15A
KR8B
Sliding
Rear
Window
Open
Relay
KR8A
Sliding
Rear
Window
Close
Relay
F10DR
15A
F1DR
15A
F2DR
15A

# F8DR, F23DR, F26DR, F32DR, F42DR, F45DR and F47DR Fuses (2500/3500)

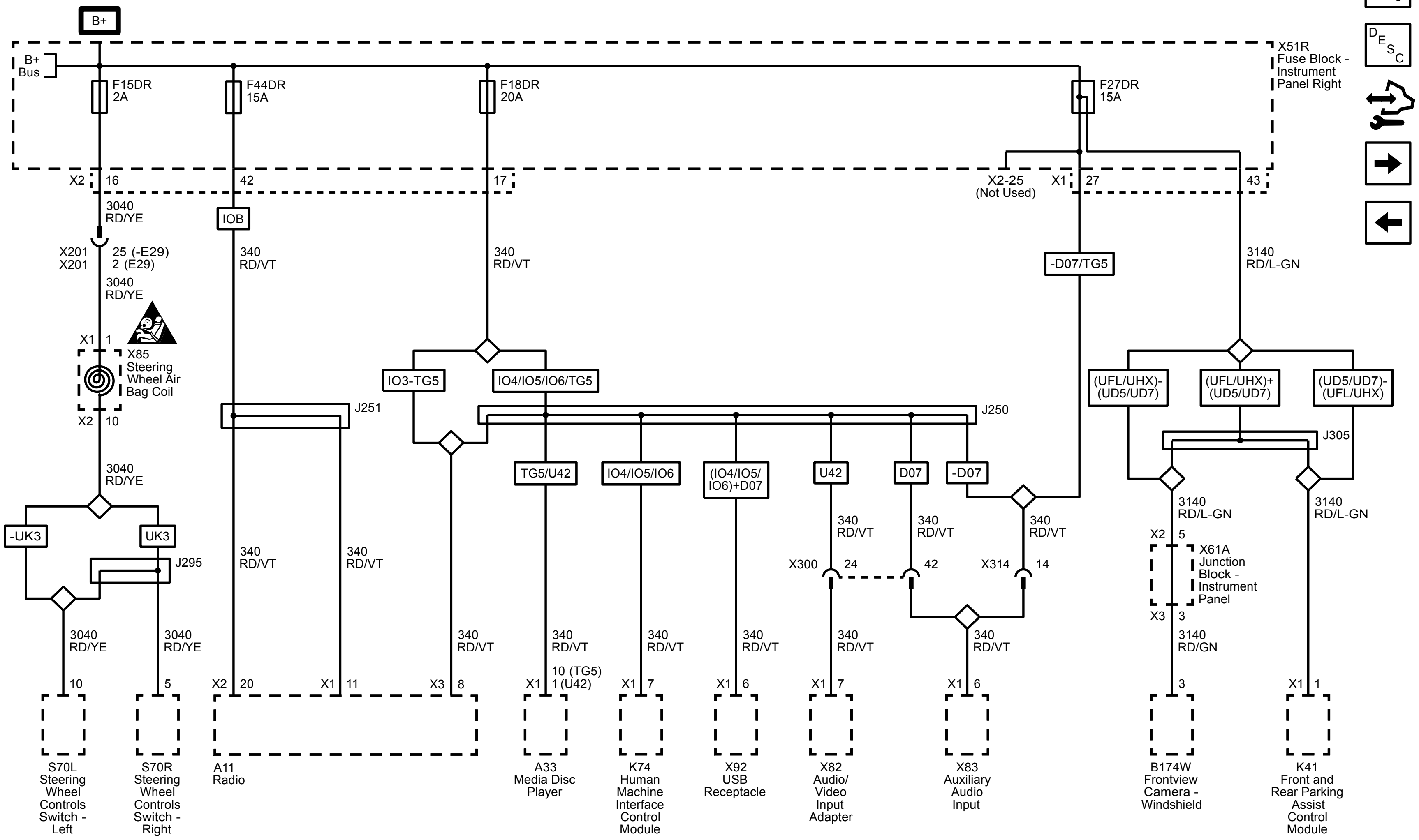
LOC
DESC


B+
B+ Bus
X51R Fuse Block - Instrument Panel Right
F32DR 30A
F8DR 20A
F45DR 15A
F42DR 30A
F47DR 30A
F26DR 10A
F23DR 10A
X2 38
7
X1 33
20
19
38
13
12
16
X2 34
-E29
A31
/
A95/AN3/B3F
PTO
PTO
UE1
1340 RD/WH
1340 RD/WH
1440 RD/BN
2640 RD/VT
4540 RD/D-BU
X600 1
X800 1
X320 2
X115 39
37
2340 RD/YE
4040 RD/VT
3440 RD/WH
1340 RD/WH
1340 RD/WH
1440 RD/BN
2640 RD/VT
4540 RD/D-BU
4440 RD/L-GN
3240 RD/D-BU
X605 27
1340 RD/WH
X4 31
X61A Junction Block - Instrument Panel
X7-7 (Not Used)
X7-17 (Not Used)
X2 4
X5 4
X1 4
8
X1 10
X191 K
X1 1
X1 9
X1 15
K9 Body Control Module
S79P Window Switch - Passenger
S79RR Window Switch - Right Rear
S64P Seat Adjuster Switch - Passenger
K44 Power Take-Off Control Module
K36 Inflatable Restraint Sensing and Diagnostic Module
K73 Telematics Communication Interface Control Module

## F1DR, F2DR, F7DR, F9DR, F20DR, F28DR, F35DR, F36DR, F43DR and F46DR Fuses (2500/3500)

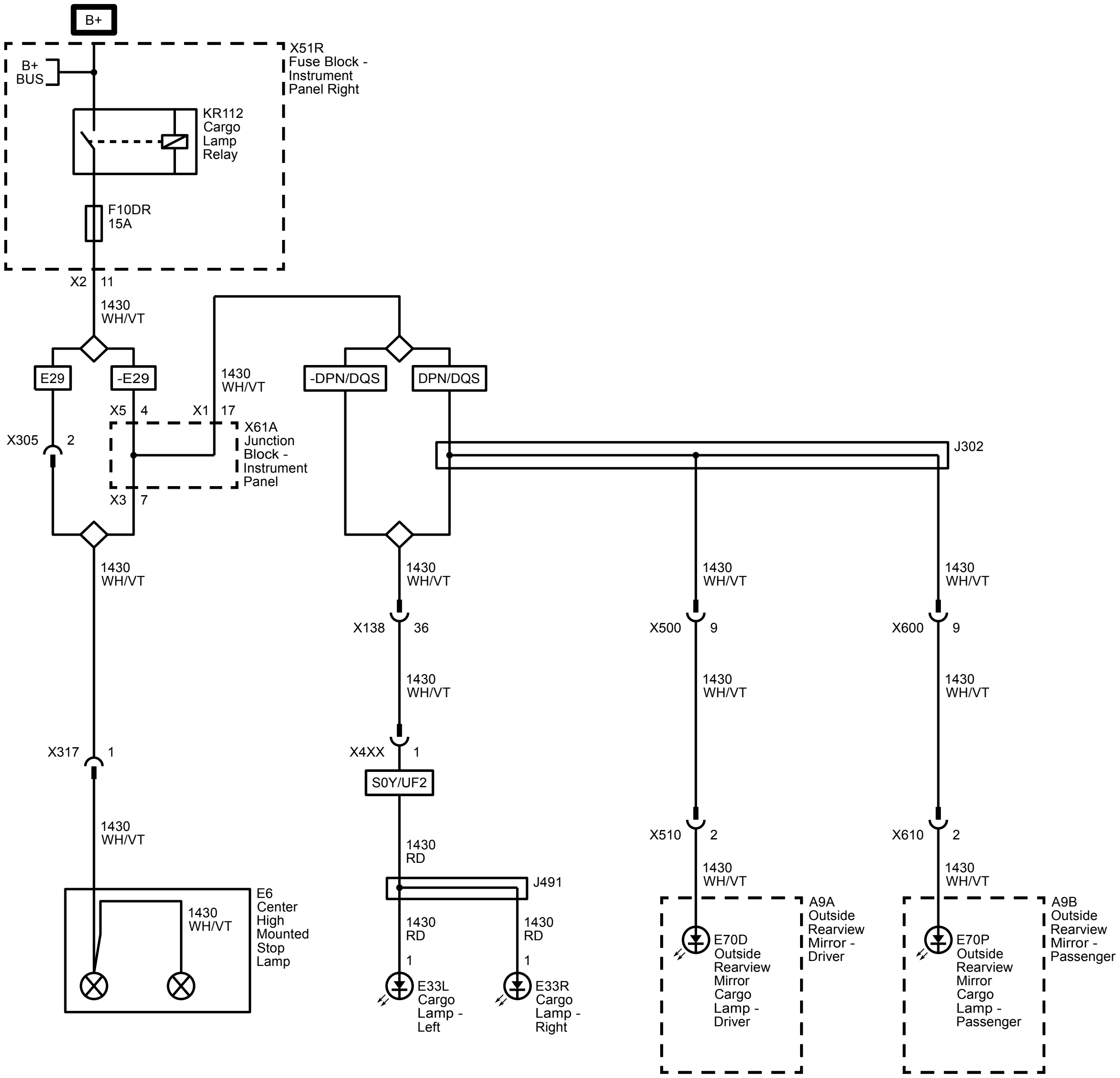

B+
B+ Bus
30
KR76B Retained Accessory Power Relay 2
87
F2DR 15A
F1DR 15A
F43DR 40A
F36DR 30A
F46DR 15A
F28DR 10A
F7DR 20A
F35DR 25A
F9DR 10A
F20DR 30A
X51R Fuse Block - Instrument Panel Right
X2 10
X1 18
22
37
34
X2 29
8
35
1
X3-3 (Not Used)
X3 1
243 VT/YE
143 VT/YE
UQA
KI4/KI5
U42
CF5/TRW
542 RD/VT
1540 RD/GN
3140 RD/L-GN
AZ3/B3F
AE7/AZ3/B3F
D07
D07
X275 21
X275 2
X217 1
3740 RD/YE
5140 RD/L-GN
2240 RD/BN
2540 RD/D-BU
4140 RD/GY
X305 5
X319 1
243 VT/YE
143 VT/YE
KI4
KI5
X241 6
X314 1
9
X300 1
2
542 RD/VT
4140 RD/GY
1540 RD/GN
3140 RD/L-GN
143 VT/YE
243 VT/YE
243 VT/YE
143 VT/YE
CF5
TRW
A
A
A
A
1
X1 4
X5 3
X1 4
2
6
X2 10
8
C1
X80E Accessory Power Receptacle - Center Seat
X80D Accessory Power Receptacle - Center Console Compartment
X80L Accessory Power Receptacle - Center Console Rear
X80D Accessory Power Receptacle - Center Console Compartment
M8 Blower Motor
T3 Audio Amplifier
K9 Body Control Module
T1 Accessory DC/ AC Power Inverter Module
P22A Video Display - 2nd Row
M69 Sunroof Motor
KR58 Roof Beacon Relay

## F15DR, F18DR, F27DR and F44DR Fuses (2500/3500)

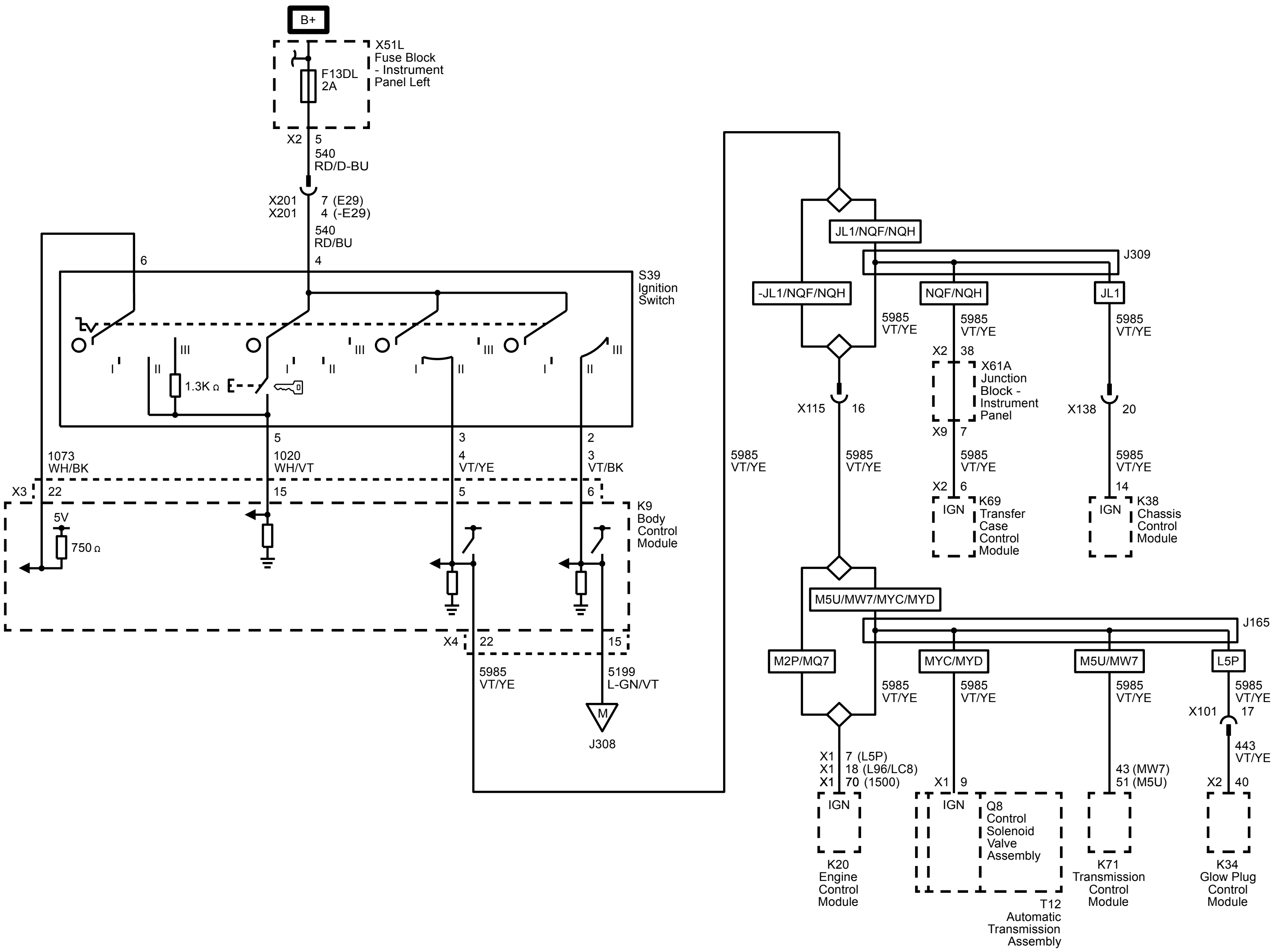


B+
B+ Bus
F15DR 2A
F44DR 15A
F18DR 20A
F27DR 15A
X51R Fuse Block - Instrument Panel Right
X2 16
42
17
X2-25 (Not Used)
X1 27
43
3040 RD/YE
IOB
X201 25 (-E29)
X201 2 (E29)
3040 RD/YE
340 RD/VT
340 RD/VT
-D07/TG5
3140 RD/L-GN
X1 1
X85 Steering Wheel Air Bag Coil
X2 10
IO3-TG5
IO4/IO5/IO6/TG5
J251
J250
(UFL/UHX)- (UD5/UD7)
(UFL/UHX)+ (UD5/UD7)
(UD5/UD7)- (UFL/UHX)
J305
3040 RD/YE
TG5/U42
IO4/IO5/IO6
(IO4/IO5/ IO6)+D07
U42
D07
-D07
-UK3
UK3
J295
340 RD/VT
340 RD/VT
340 RD/VT
340 RD/VT
340 RD/VT
3140 RD/L-GN
3140 RD/L-GN
X2 5
X61A Junction Block - Instrument Panel
X3 3
X300 24
42
X314 14
3040 RD/YE
3040 RD/YE
340 RD/VT
340 RD/VT
340 RD/VT
340 RD/VT
340 RD/VT
340 RD/VT
340 RD/VT
3140 RD/GN
10 (TG5)
1 (U42)
10
5
X2 20
X1 11
X3 8
X1
X1 7
X1 6
X1 7
X1 6
3
X1 1
S70L Steering Wheel Controls Switch - Left
S70R Steering Wheel Controls Switch - Right
A11 Radio
A33 Media Disc Player
K74 Human Machine Interface Control Module
X92 USB Receptacle
X82 Audio/ Video Input Adapter
X83 Auxiliary Audio Input
B174W Frontview Camera - Windshield
K41 Front and Rear Parking Assist Control Module

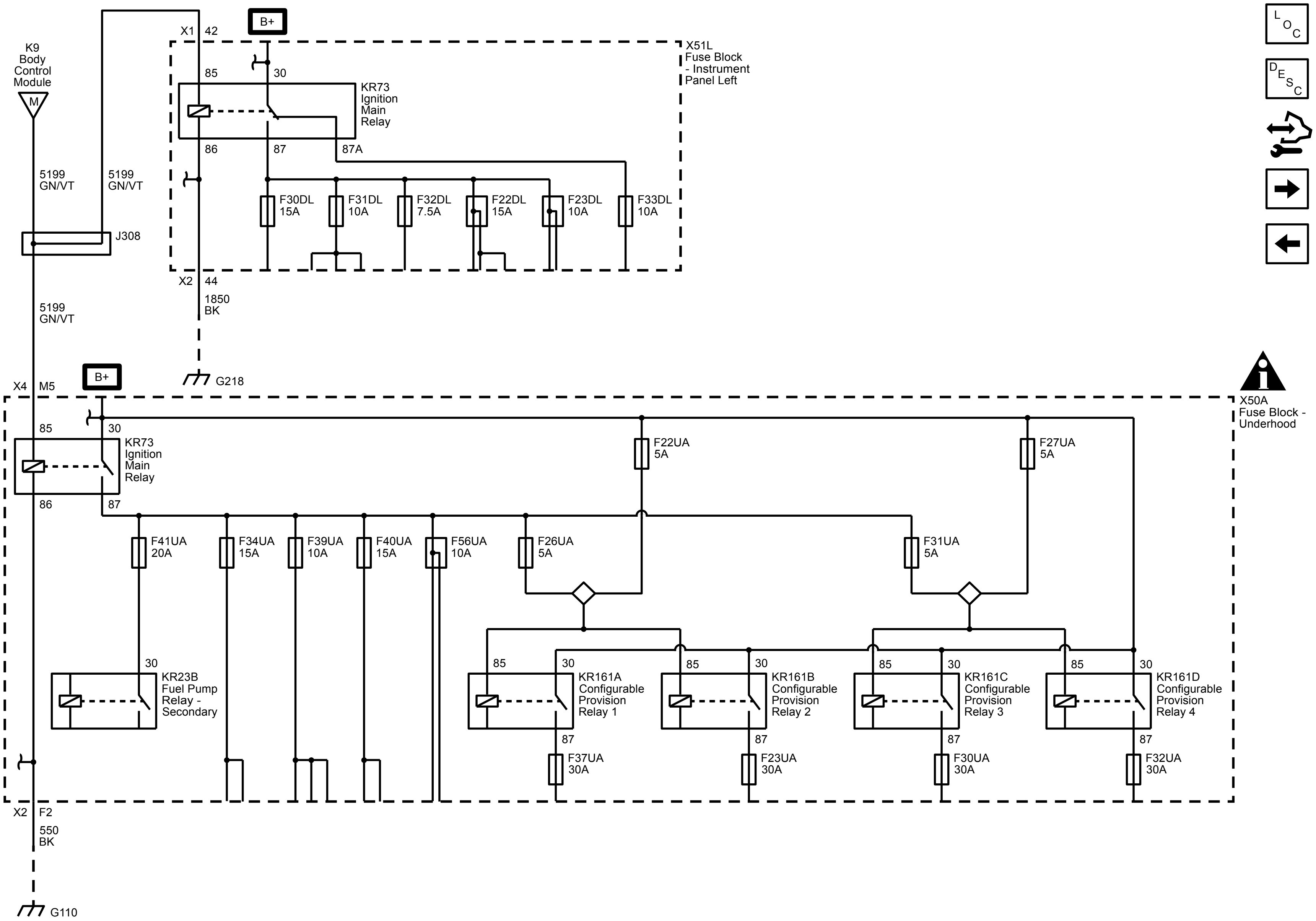
## F10DR Fuse (2500/3500)

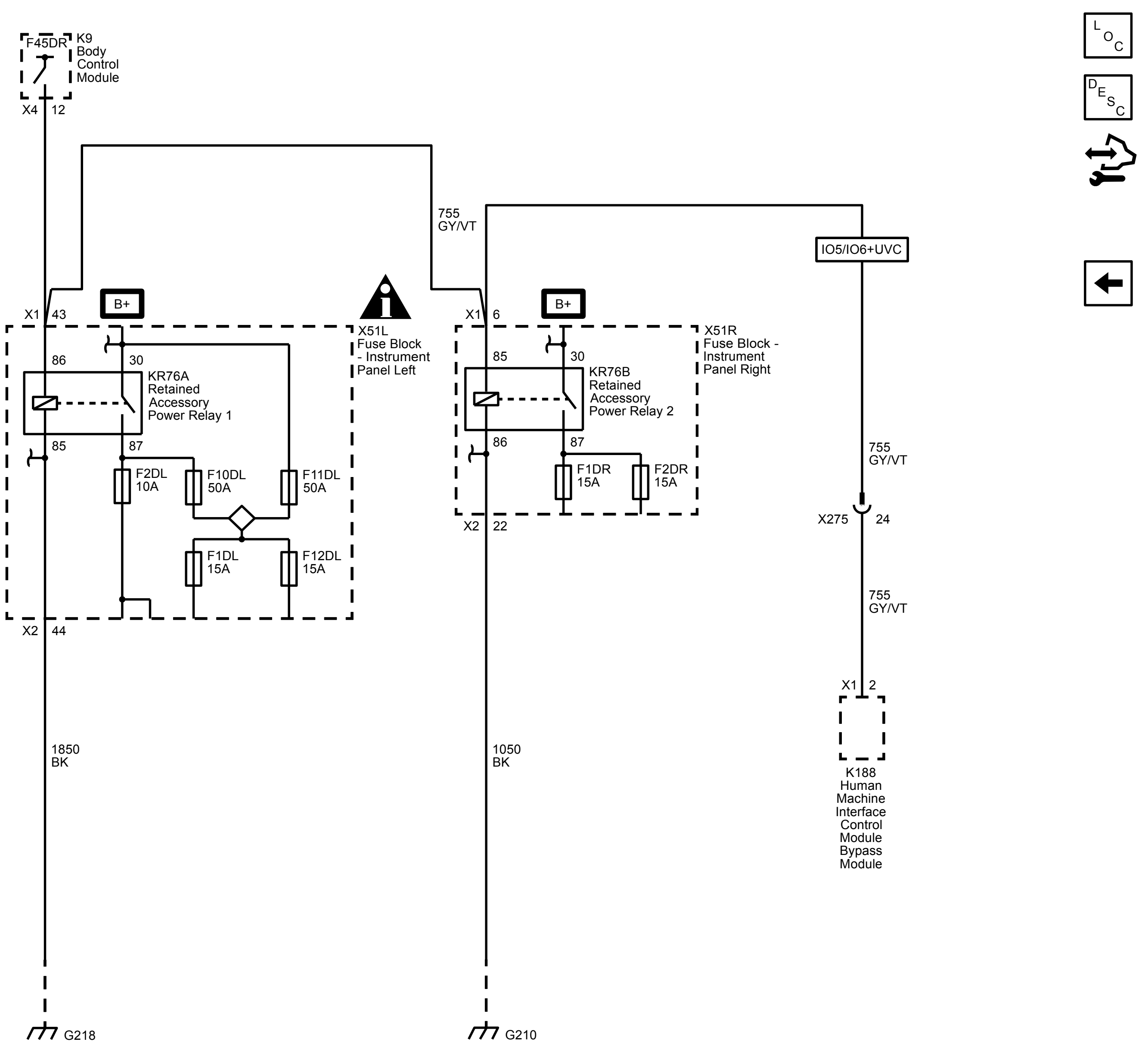

B+
B+
BUS
X51R
Fuse Block -
Instrument
Panel Right
KR112
Cargo
Lamp
Relay
F10DR
15A
X2
11
1430
WH/VT
E29
-E29
1430
WH/VT
-DPN/DQS
DPN/DQS
X305
2
X5
4
X1
17
X61A
Junction
Block -
Instrument
Panel
X3
7
J302
1430
WH/VT
1430
WH/VT
1430
WH/VT
1430
WH/VT
X138
36
X500
9
X600
9
1430
WH/VT
1430
WH/VT
1430
WH/VT
X317
1
X4XX
1
S0Y/UF2
X510
2
X610
2
1430
WH/VT
1430
RD
J491
1430
WH/VT
1430
WH/VT
E6
Center
High
Mounted
Stop
Lamp
1430
WH/VT
1430
RD
1430
RD
A9A
Outside
Rearview
Mirror -
Driver
A9B
Outside
Rearview
Mirror -
Passenger
1
1
E33L
Cargo
Lamp -
Left
E33R
Cargo
Lamp -
Right
E70D
Outside
Rearview
Mirror
Cargo
Lamp -
Driver
E70P
Outside
Rearview
Mirror
Cargo
Lamp -
Passenger

## Ignition Switch and Ignition Power


B+
X51L Fuse Block - Instrument Panel Left
F13DL 2A
X2 5
540 RD/D-BU
X201 7 (E29)
X201 4 (-E29)
540 RD/BU
6
4
S39 Ignition Switch
III
II
I
1.3K Ω
5
1020 WH/VT
3
4 VT/YE
2
3 VT/BK
1073 WH/BK
X3 22
15
5
6
K9 Body Control Module
5V
750 Ω
X4 22
15
5985 VT/YE
5199 L-GN/VT
M
J308
5985 VT/YE
JL1/NQF/NQH
J309
-JL1/NQF/NQH
NQF/NQH
JL1
5985 VT/YE
X2 38
X61A Junction Block - Instrument Panel
X9 7
X115 16
X138 20
X2 6
IGN
K69 Transfer Case Control Module
14
K38 Chassis Control Module
M5U/MW7/MYC/MYD
J165
M2P/MQ7
MYC/MYD
M5U/MW7
L5P
X101 17
443 VT/YE
X1 7 (L5P)
X1 18 (L96/LC8)
X1 70 (1500)
X1 9
43 (MW7)
51 (M5U)
X2 40
K20 Engine Control Module
Q8 Control Solenoid Valve Assembly
T12 Automatic Transmission Assembly
K71 Transmission Control Module
K34 Glow Plug Control Module

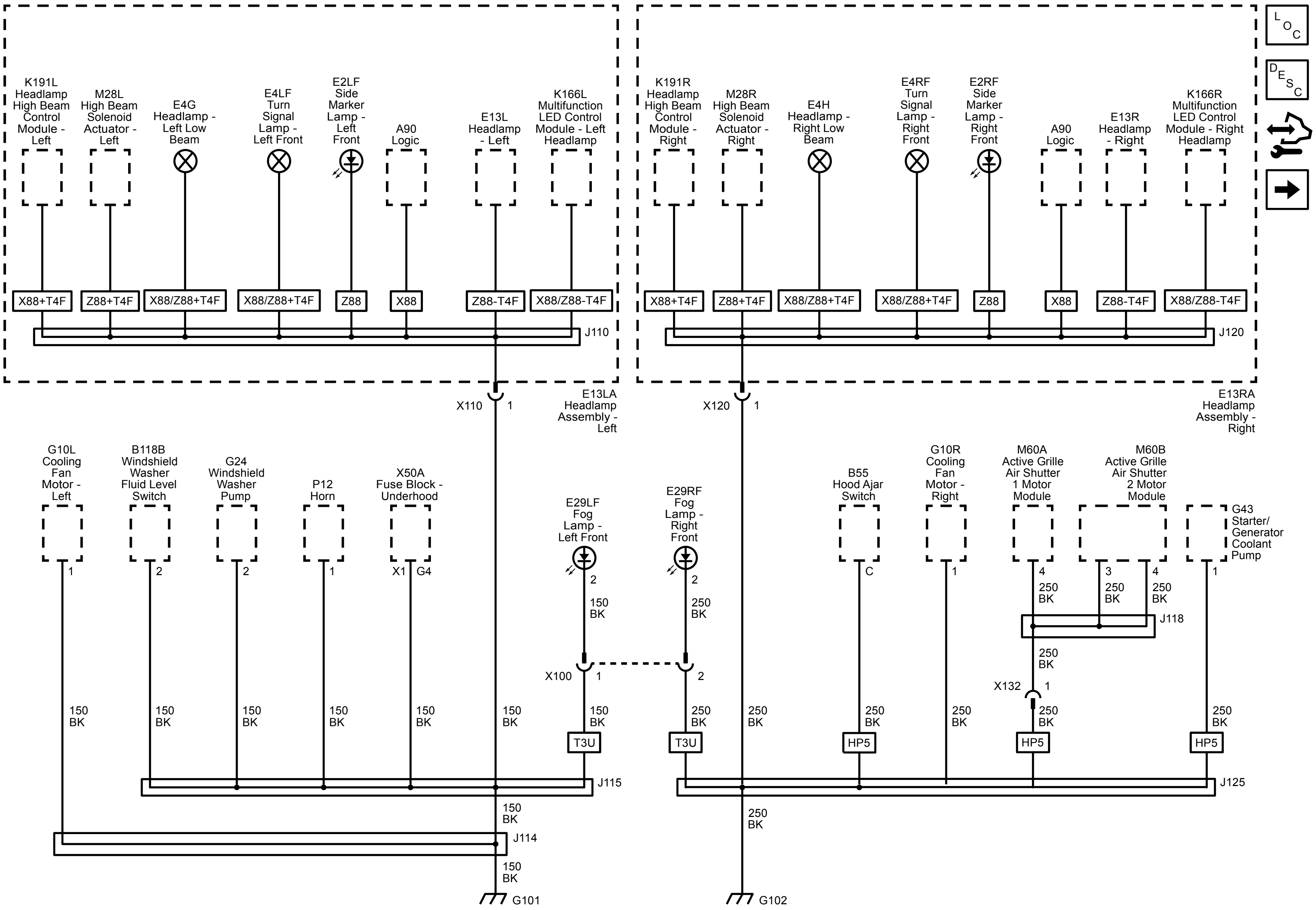
## Ignition Main Relays


K9
Body
Control
Module
M
5199
GN/VT
5199
GN/VT
J308
5199
GN/VT
X1
42
B+
85
30
KR73
Ignition
Main
Relay
86
87
87A
X51L
Fuse Block
- Instrument
Panel Left
F30DL
15A
F31DL
10A
F32DL
7.5A
F22DL
15A
F23DL
10A
F33DL
10A
X2
44
1850
BK
G218
X4
M5
B+
X50A
Fuse Block -
Underhood
85
30
KR73
Ignition
Main
Relay
86
87
F22UA
5A
F27UA
5A
F41UA
20A
F34UA
15A
F39UA
10A
F40UA
15A
F56UA
10A
F26UA
5A
F31UA
5A
30
KR23B
Fuel Pump
Relay -
Secondary
85
30
KR161A
Configurable
Provision
Relay 1
85
30
KR161B
Configurable
Provision
Relay 2
85
30
KR161C
Configurable
Provision
Relay 3
85
30
KR161D
Configurable
Provision
Relay 4
87
F37UA
30A
87
F23UA
30A
87
F30UA
30A
87
F32UA
30A
X2
F2
550
BK
G110
L O C
D E S C


F45DR
K9
Body
Control
Module
X4 12
755
GY/VT
IO5/IO6+UVC
X1 43
B+
X51L
Fuse Block
- Instrument
Panel Left
86
30
KR76A
Retained
Accessory
Power Relay 1
85
87
F2DL
10A
F10DL
50A
F11DL
50A
F1DL
15A
F12DL
15A
X2 44
1850
BK
G218
X1 6
B+
X51R
Fuse Block -
Instrument
Panel Right
85
30
KR76B
Retained
Accessory
Power Relay 2
86
87
F1DR
15A
F2DR
15A
X2 22
1050
BK
G210
755
GY/VT
X275 24
755
GY/VT
X1 2
K188
Human
Machine
Interface
Control
Module
Bypass
Module
LOC
DESC

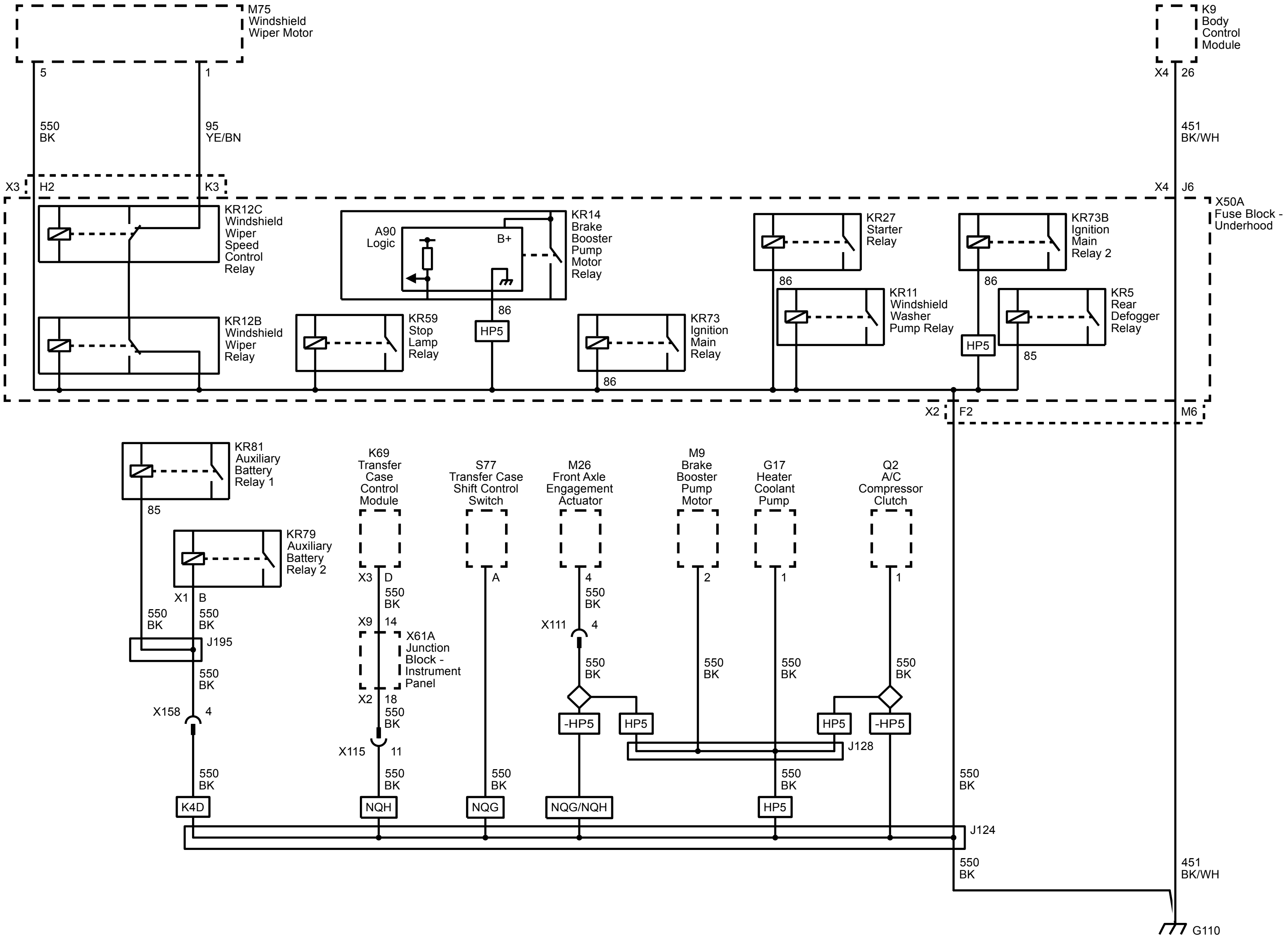
## Ground Distribution Schematics (1500)

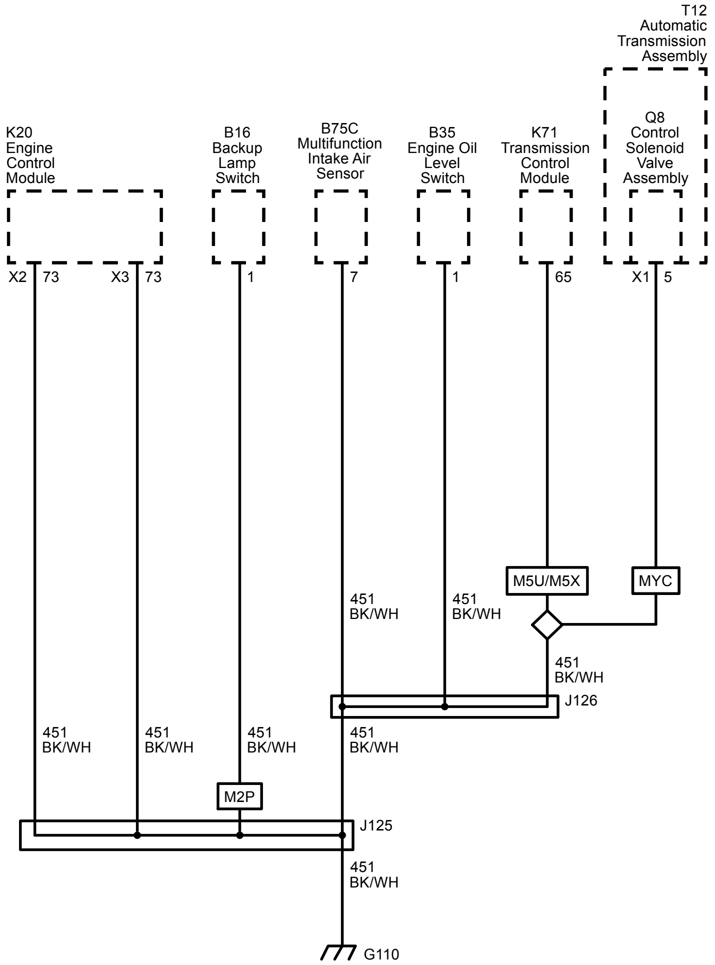
### G101 and G102 (1500)



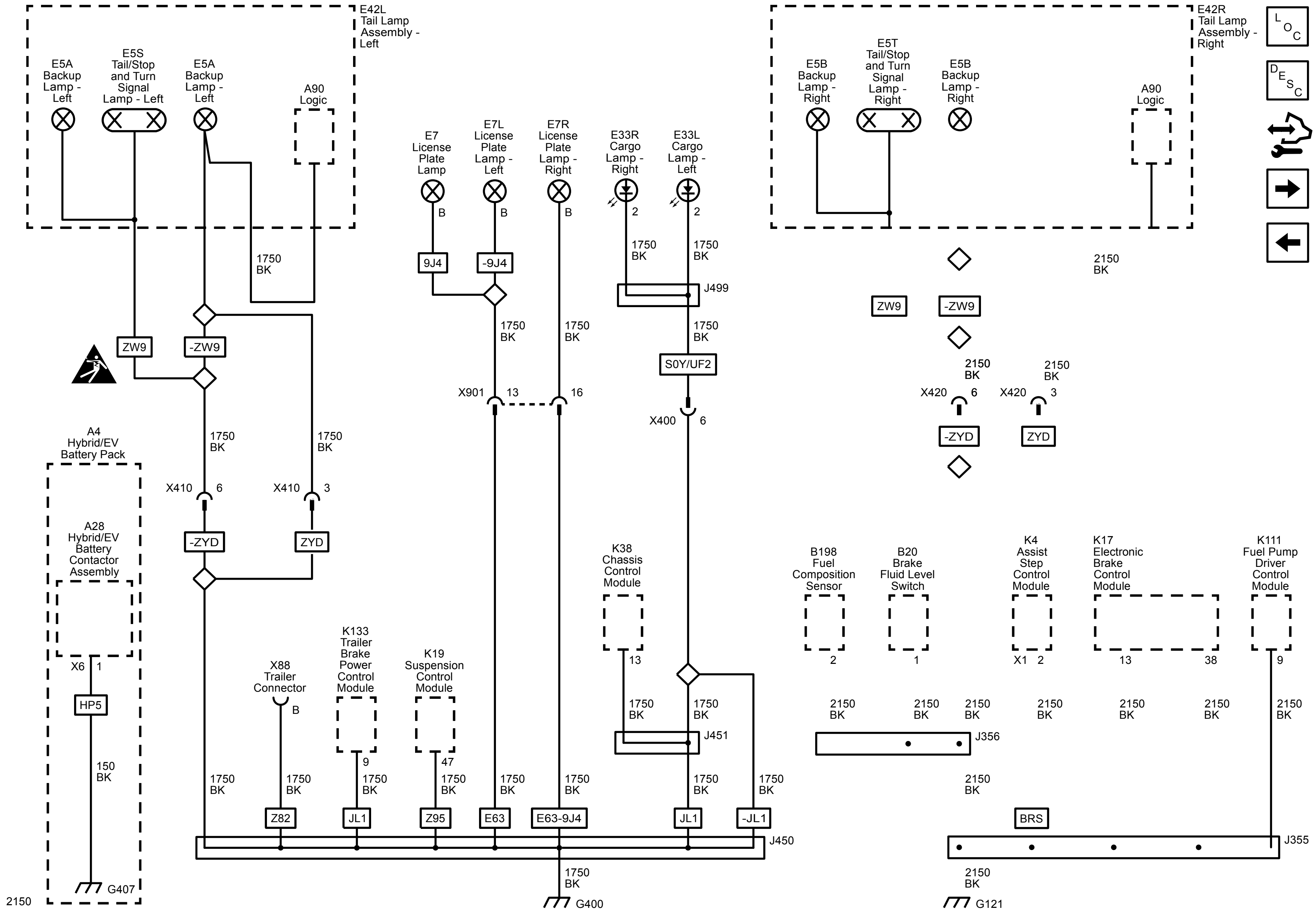
K191L Headlamp High Beam Control Module - Left
M28L High Beam Solenoid Actuator - Left
E4G Headlamp - Left Low Beam
E4LF Turn Signal Lamp - Left Front
E2LF Side Marker Lamp - Left Front
A90 Logic
E13L Headlamp - Left
K166L Multifunction LED Control Module - Left Headlamp
X88+T4F
Z88+T4F
X88/Z88+T4F
X88/Z88+T4F
Z88
X88
Z88-T4F
X88/Z88-T4F
J110
X110
1
E13LA Headlamp Assembly - Left
K191R Headlamp High Beam Control Module - Right
M28R High Beam Solenoid Actuator - Right
E4H Headlamp - Right Low Beam
E4RF Turn Signal Lamp - Right Front
E2RF Side Marker Lamp - Right Front
A90 Logic
E13R Headlamp - Right
K166R Multifunction LED Control Module - Right Headlamp
X88+T4F
Z88+T4F
X88/Z88+T4F
X88/Z88+T4F
Z88
X88
Z88-T4F
X88/Z88-T4F
J120
X120
1
E13RA Headlamp Assembly - Right
L O C
D E S C
G10L Cooling Fan Motor - Left
1
B118B Windshield Washer Fluid Level Switch
2
G24 Windshield Washer Pump
2
P12 Horn
1
X50A Fuse Block - Underhood
X1
G4
E29LF Fog Lamp - Left Front
2
150 BK
X100
1
E29RF Fog Lamp - Right Front
2
250 BK
2
150 BK
150 BK
150 BK
150 BK
150 BK
150 BK
150 BK
T3U
250 BK
T3U
250 BK
J115
150 BK
J114
150 BK
G101
250 BK
250 BK
G102
B55 Hood Ajar Switch
C
250 BK
HP5
G10R Cooling Fan Motor - Right
1
250 BK
M60A Active Grille Air Shutter 1 Motor Module
4
250 BK
M60B Active Grille Air Shutter 2 Motor Module
3
250 BK
4
250 BK
J118
250 BK
X132
1
250 BK
HP5
G43 Starter/ Generator Coolant Pump
1
250 BK
HP5
J125

# G110 1 of 2 (1500)

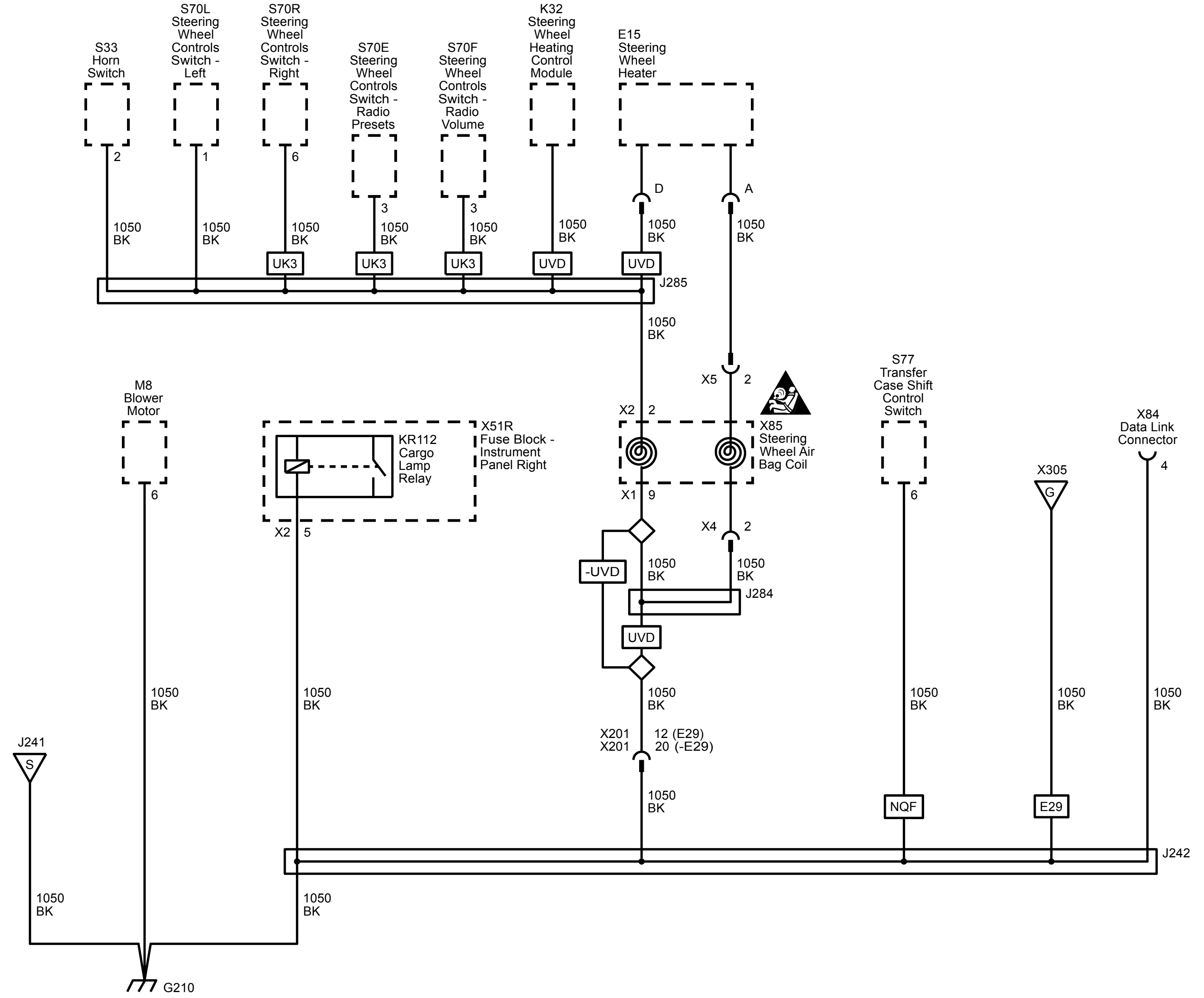

M75 Windshield Wiper Motor
5
1
550 BK
95 YE/BN
K9 Body Control Module
X4 26
451 BK/WH
X3 H2
K3
X4 J6
X50A Fuse Block - Underhood
KR12C Windshield Wiper Speed Control Relay
KR12B Windshield Wiper Relay
A90 Logic
B+
KR14 Brake Booster Pump Motor Relay
86
HP5
KR59 Stop Lamp Relay
KR73 Ignition Main Relay
86
KR27 Starter Relay
86
KR11 Windshield Washer Pump Relay
KR73B Ignition Main Relay 2
86
HP5
KR5 Rear Defogger Relay
85
X2 F2
M6
KR81 Auxiliary Battery Relay 1
85
KR79 Auxiliary Battery Relay 2
X1 B
550 BK
550 BK
J195
550 BK
X158 4
550 BK
K4D
K69 Transfer Case Control Module
X3 D
550 BK
X9 14
X61A Junction Block - Instrument Panel
X2 18
550 BK
X115 11
550 BK
NQH
S77 Transfer Case Shift Control Switch
A
550 BK
NQG
M26 Front Axle Engagement Actuator
4
550 BK
X111 4
550 BK
-HP5
HP5
NQG/NQH
M9 Brake Booster Pump Motor
2
550 BK
G17 Heater Coolant Pump
1
550 BK
550 BK
HP5
Q2 A/C Compressor Clutch
1
550 BK
HP5
-HP5
J128
550 BK
J124
550 BK
451 BK/WH
G110


T12
Automatic
Transmission
Assembly
K20
Engine
Control
Module
B16
Backup
Lamp
Switch
B75C
Multifunction
Intake Air
Sensor
B35
Engine Oil
Level
Switch
K71
Transmission
Control
Module
Q8
Control
Solenoid
Valve
Assembly
X2 73
X3 73
1
7
1
65
X1 5
M5U/M5X
MYC
451
BK/WH
J126
M2P
J125
G110

## G121, G400, and G407 (HP5) (1500)

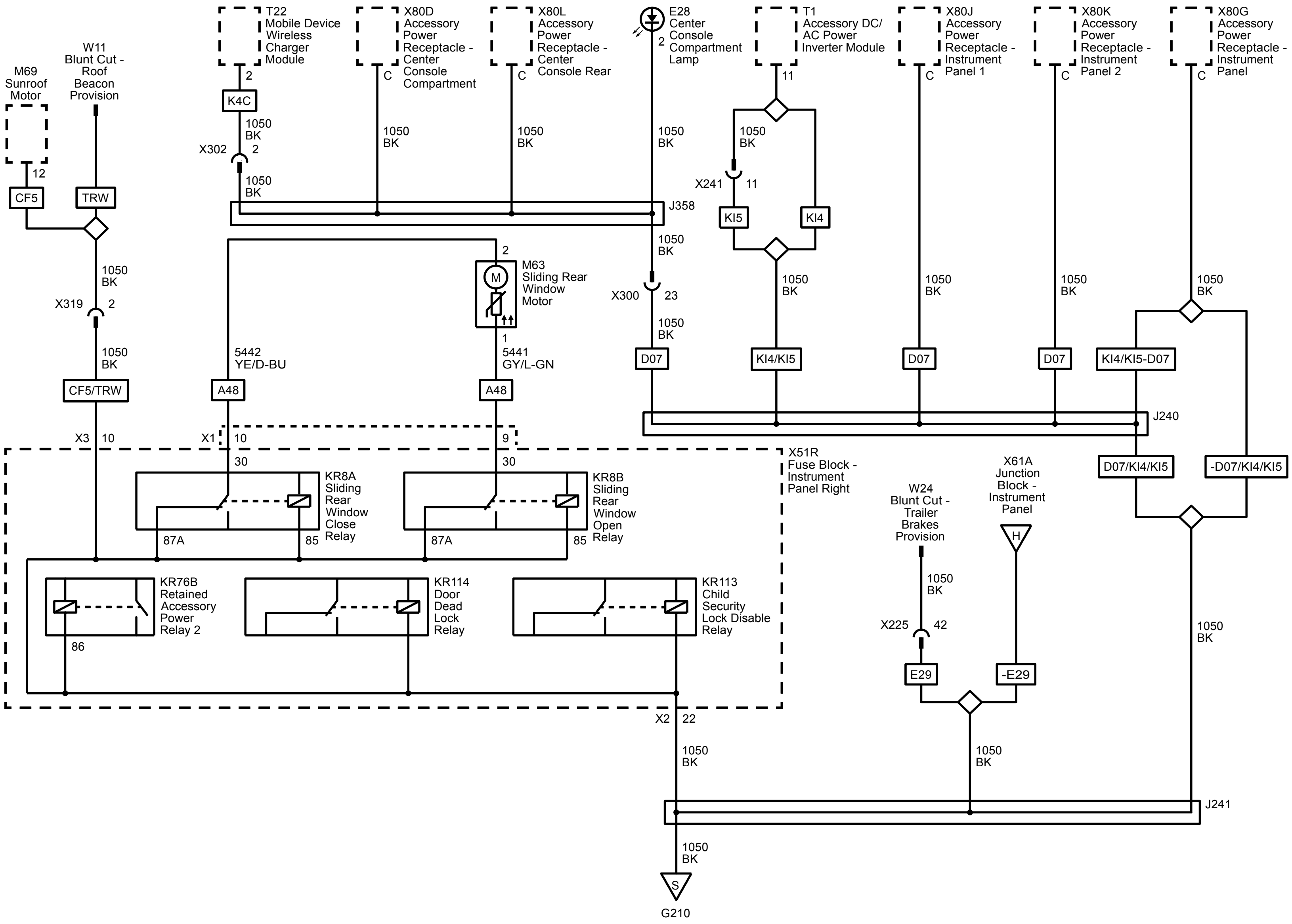

E42L Tail Lamp Assembly - Left
E5A Backup Lamp - Left
E5S Tail/Stop and Turn Signal Lamp - Left
E5A Backup Lamp - Left
A90 Logic
1750 BK
ZW9
-ZW9
1750 BK
1750 BK
A4 Hybrid/EV Battery Pack
A28 Hybrid/EV Battery Contactor Assembly
X6 1
HP5
150 BK
G407
2150
X410 6
X410 3
-ZYD
ZYD
1750 BK
X88 Trailer Connector
B
1750 BK
Z82
K133 Trailer Brake Power Control Module
9
1750 BK
JL1
K19 Suspension Control Module
47
1750 BK
Z95
E7 License Plate Lamp
B
9J4
E7L License Plate Lamp - Left
B
-9J4
1750 BK
X901 13
E63
E7R License Plate Lamp - Right
B
1750 BK
16
E63-9J4
E33R Cargo Lamp - Right
2
1750 BK
E33L Cargo Lamp - Left
2
1750 BK
J499
1750 BK
S0Y/UF2
X400 6
K38 Chassis Control Module
13
1750 BK
1750 BK
J451
1750 BK
JL1
1750 BK
-JL1
J450
1750 BK
G400
E42R Tail Lamp Assembly - Right
E5B Backup Lamp - Right
E5T Tail/Stop and Turn Signal Lamp - Right
E5B Backup Lamp - Right
A90 Logic
2150 BK
ZW9
-ZW9
2150 BK
X420 6
2150 BK
X420 3
-ZYD
ZYD
B198 Fuel Composition Sensor
2
2150 BK
B20 Brake Fluid Level Switch
1
2150 BK
J356
2150 BK
K4 Assist Step Control Module
X1 2
2150 BK
2150 BK
K17 Electronic Brake Control Module
13
38
2150 BK
2150 BK
K111 Fuel Pump Driver Control Module
9
2150 BK
BRS
J355
2150 BK
G121
L O C
D E S C

# G210 1 of 3 (1500)

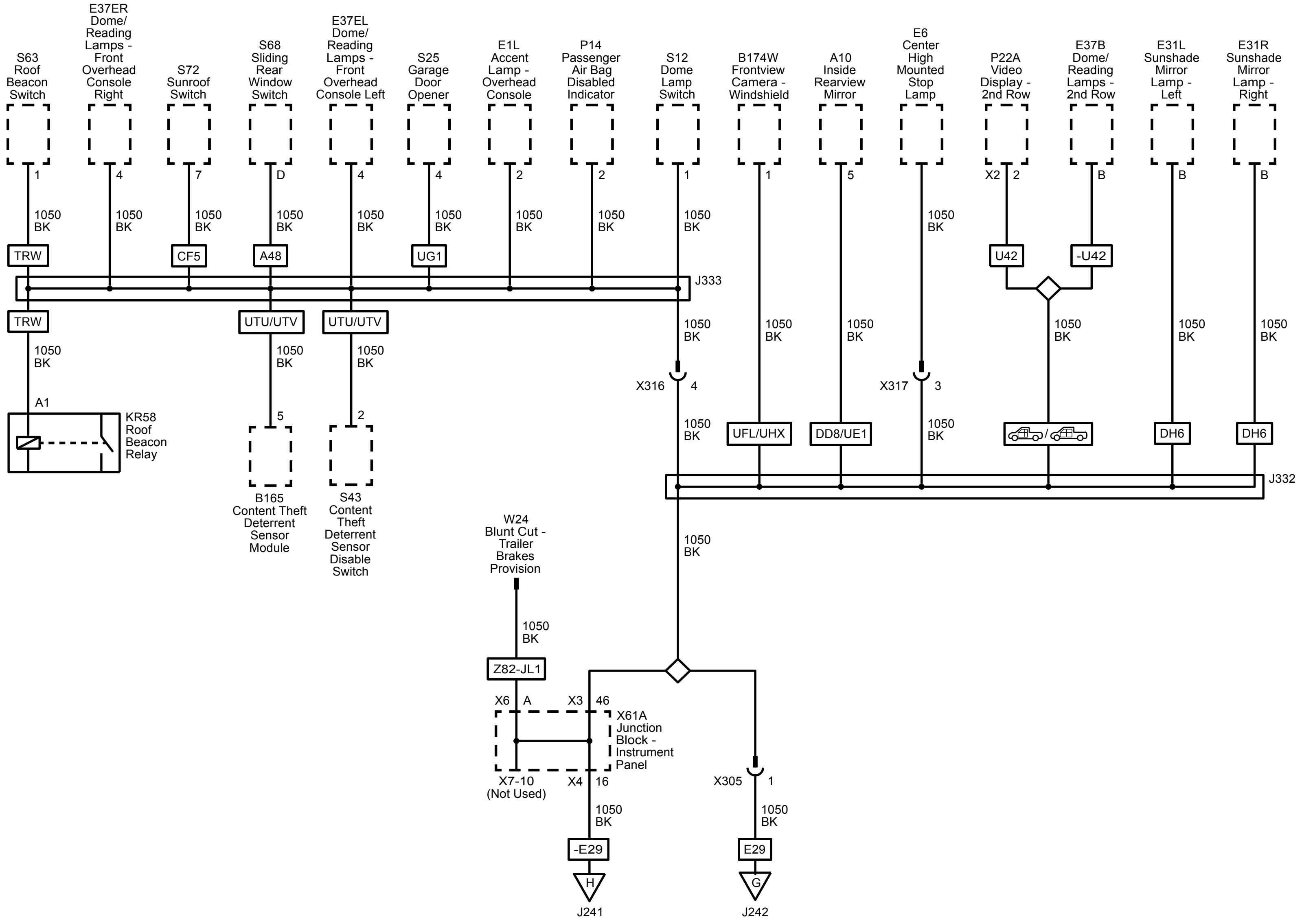


S33 Horn Switch
S70L Steering Wheel Controls Switch - Left
S70R Steering Wheel Controls Switch - Right
S70E Steering Wheel Controls Switch - Radio Presets
S70F Steering Wheel Controls Switch - Radio Volume
K32 Steering Wheel Heating Control Module
E15 Steering Wheel Heater
2
1
6
3
3
D
A
1050 BK
1050 BK
1050 BK
1050 BK
1050 BK
1050 BK
1050 BK
1050 BK
UK3
UK3
UK3
UVD
UVD
J285
1050 BK
X5 2
X2 2
X85 Steering Wheel Air Bag Coil
X1 9
X4 2
-UVD
1050 BK
1050 BK
J284
UVD
1050 BK
X201 12 (E29)
X201 20 (-E29)
1050 BK
M8 Blower Motor
6
X51R Fuse Block - Instrument Panel Right
KR112 Cargo Lamp Relay
X2 5
S77 Transfer Case Shift Control Switch
6
X305
G
X84 Data Link Connector
4
1050 BK
1050 BK
1050 BK
1050 BK
1050 BK
NQF
E29
J242
J241
S
1050 BK
1050 BK
G210

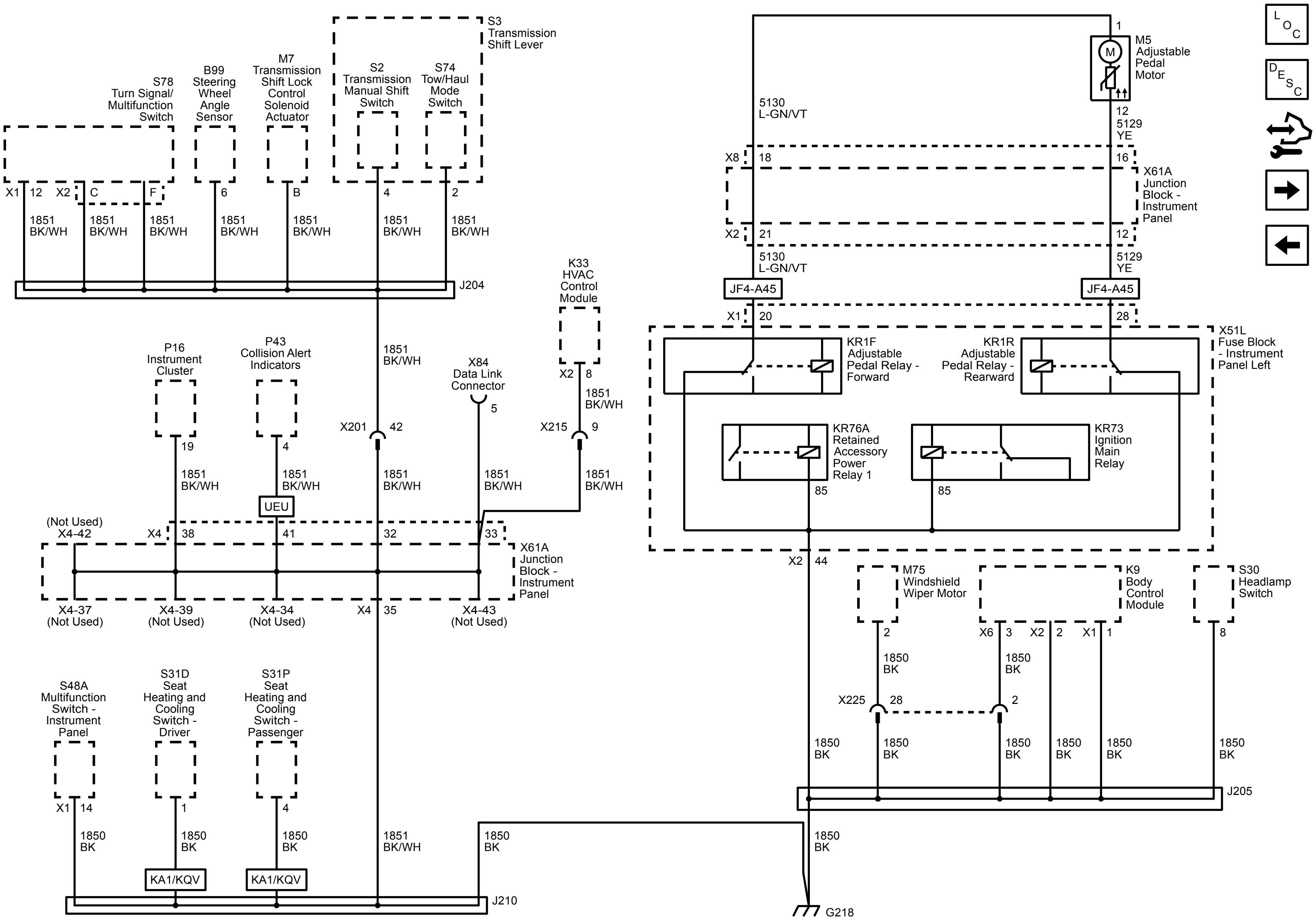
## G210 2 of 3 (1500)


T22 Mobile Device Wireless Charger Module
X80D Accessory Power Receptacle - Center Console Compartment
X80L Accessory Power Receptacle - Center Console Rear
E28 Center Console Compartment Lamp
T1 Accessory DC/ AC Power Inverter Module
X80J Accessory Power Receptacle - Instrument Panel 1
X80K Accessory Power Receptacle - Instrument Panel 2
X80G Accessory Power Receptacle - Instrument Panel
W11 Blunt Cut - Roof Beacon Provision
M69 Sunroof Motor
2
C
C
2
11
C
C
C
12
K4C
CF5
TRW
1050 BK
X302
2
1050 BK
1050 BK
1050 BK
1050 BK
1050 BK
X241
11
KI5
KI4
J358
1050 BK
2
M63 Sliding Rear Window Motor
M
1050 BK
X319
2
1050 BK
X300
23
1050 BK
1050 BK
1050 BK
1050 BK
1050 BK
1
5442 YE/D-BU
5441 GY/L-GN
CF5/TRW
A48
A48
D07
KI4/KI5
D07
D07
KI4/KI5-D07
J240
X3
10
X1
10
9
30
30
X51R Fuse Block - Instrument Panel Right
KR8A Sliding Rear Window Close Relay
KR8B Sliding Rear Window Open Relay
87A
85
87A
85
D07/KI4/KI5
-D07/KI4/KI5
X61A Junction Block - Instrument Panel
W24 Blunt Cut - Trailer Brakes Provision
H
KR76B Retained Accessory Power Relay 2
86
KR114 Door Dead Lock Relay
KR113 Child Security Lock Disable Relay
1050 BK
X225
42
1050 BK
E29
-E29
X2
22
1050 BK
1050 BK
J241
1050 BK
S
G210

# G210 3 of 3 (1500)

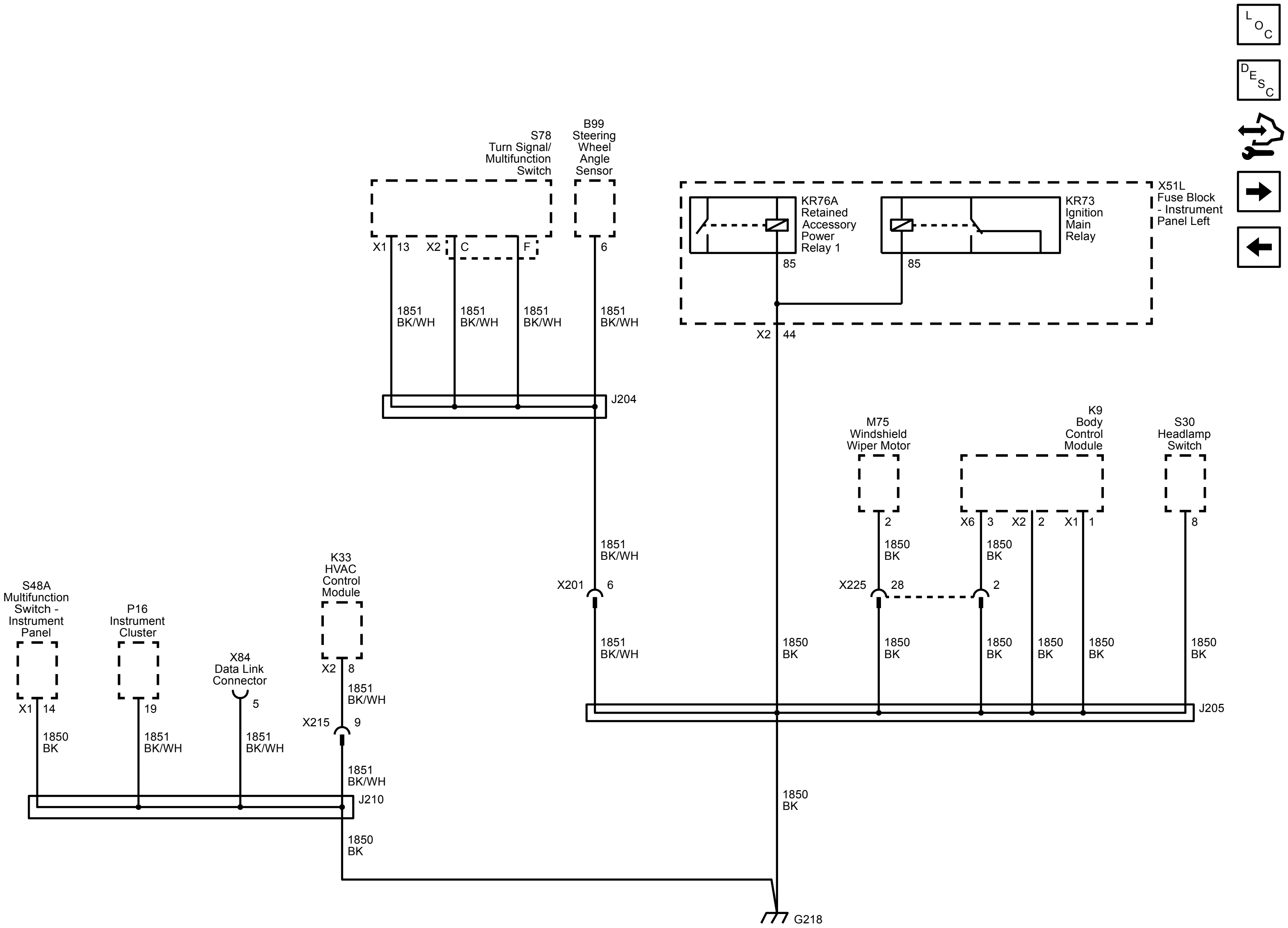

S63 Roof Beacon Switch
E37ER Dome/ Reading Lamps - Front Overhead Console Right
S72 Sunroof Switch
S68 Sliding Rear Window Switch
E37EL Dome/ Reading Lamps - Front Overhead Console Left
S25 Garage Door Opener
E1L Accent Lamp - Overhead Console
P14 Passenger Air Bag Disabled Indicator
S12 Dome Lamp Switch
B174W Frontview Camera - Windshield
A10 Inside Rearview Mirror
E6 Center High Mounted Stop Lamp
P22A Video Display - 2nd Row
E37B Dome/ Reading Lamps - 2nd Row
E31L Sunshade Mirror Lamp - Left
E31R Sunshade Mirror Lamp - Right
1
4
7
D
4
4
2
2
1
1
5
X2 2
B
B
B
1050 BK
TRW
CF5
A48
UG1
U42
-U42
J333
TRW
UTU/UTV
UTU/UTV
X316 4
X317 3
UFL/UHX
DD8/UE1
DH6
DH6
J332
A1
KR58 Roof Beacon Relay
5
2
B165 Content Theft Deterrent Sensor Module
S43 Content Theft Deterrent Sensor Disable Switch
W24 Blunt Cut - Trailer Brakes Provision
Z82-JL1
X6 A
X3 46
X61A Junction Block - Instrument Panel
X7-10 (Not Used)
X4 16
X305 1
-E29
E29
H
G
J241
J242

## G218 (1500 except E29)



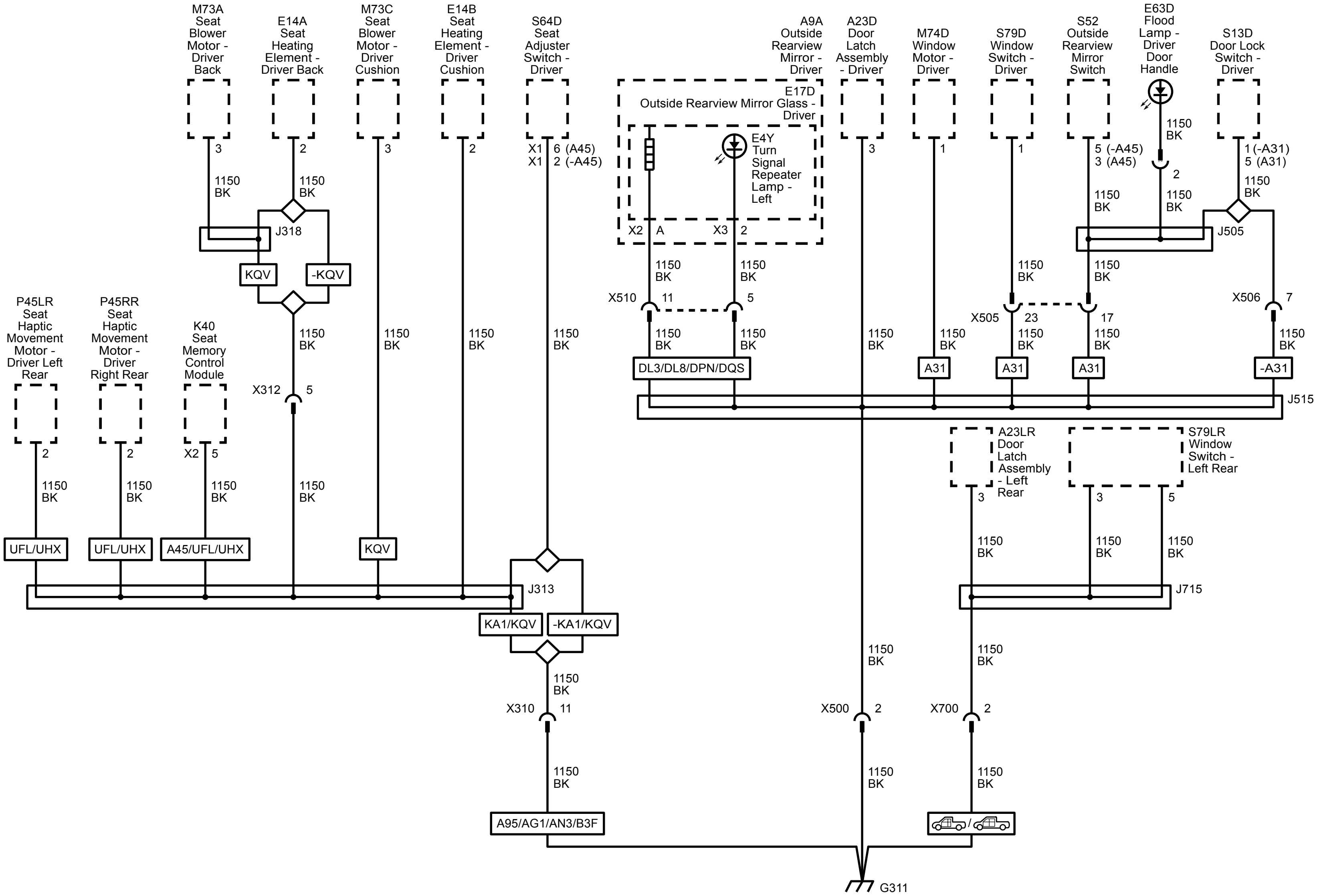
S78 Turn Signal/ Multifunction Switch
B99 Steering Wheel Angle Sensor
M7 Transmission Shift Lock Control Solenoid Actuator
S3 Transmission Shift Lever
S2 Transmission Manual Shift Switch
S74 Tow/Haul Mode Switch
X1 12 X2 C F
6
B
4
2
1851 BK/WH
J204
K33 HVAC Control Module
X2 8
P16 Instrument Cluster
P43 Collision Alert Indicators
X84 Data Link Connector
5
19
4
X201 42
X215 9
UEU
(Not Used) X4-42
X4 38
41
32
33
X61A Junction Block - Instrument Panel
X4-37 (Not Used)
X4-39 (Not Used)
X4-34 (Not Used)
X4 35
X4-43 (Not Used)
S48A Multifunction Switch - Instrument Panel
S31D Seat Heating and Cooling Switch - Driver
S31P Seat Heating and Cooling Switch - Passenger
X1 14
1
4
1850 BK
KA1/KQV
J210
G218
1
M5 Adjustable Pedal Motor
M
5130 L-GN/VT
12
5129 YE
X8 18
16
X2 21
12
JF4-A45
X1 20
28
X51L Fuse Block - Instrument Panel Left
KR1F Adjustable Pedal Relay - Forward
KR1R Adjustable Pedal Relay - Rearward
KR76A Retained Accessory Power Relay 1
KR73 Ignition Main Relay
85
X2 44
M75 Windshield Wiper Motor
K9 Body Control Module
S30 Headlamp Switch
2
X6 3 X2 2 X1 1
8
X225 28
2
J205

## G218 (1500 with E29)

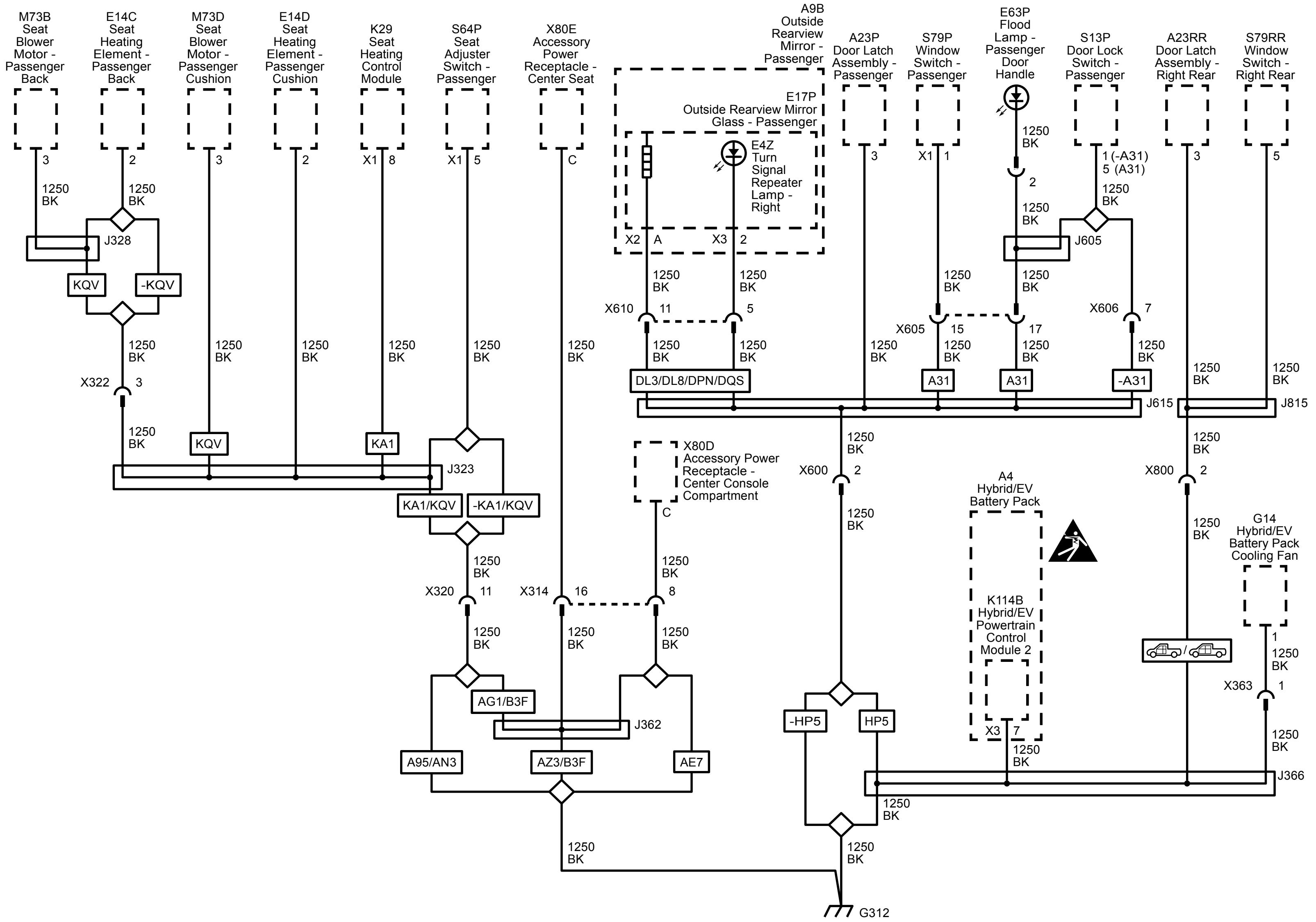


S78 Turn Signal/ Multifunction Switch
B99 Steering Wheel Angle Sensor
KR76A Retained Accessory Power Relay 1
KR73 Ignition Main Relay
X51L Fuse Block - Instrument Panel Left
X1 13
X2 C F
6
85
85
X2 44
1851 BK/WH
J204
M75 Windshield Wiper Motor
K9 Body Control Module
S30 Headlamp Switch
2
X6 3 X2 2 X1 1
8
1850 BK
X201 6
X225 28
2
S48A Multifunction Switch - Instrument Panel
P16 Instrument Cluster
X84 Data Link Connector
K33 HVAC Control Module
X2 8
X215 9
X1 14
19
5
1850 BK
J205
J210
G218

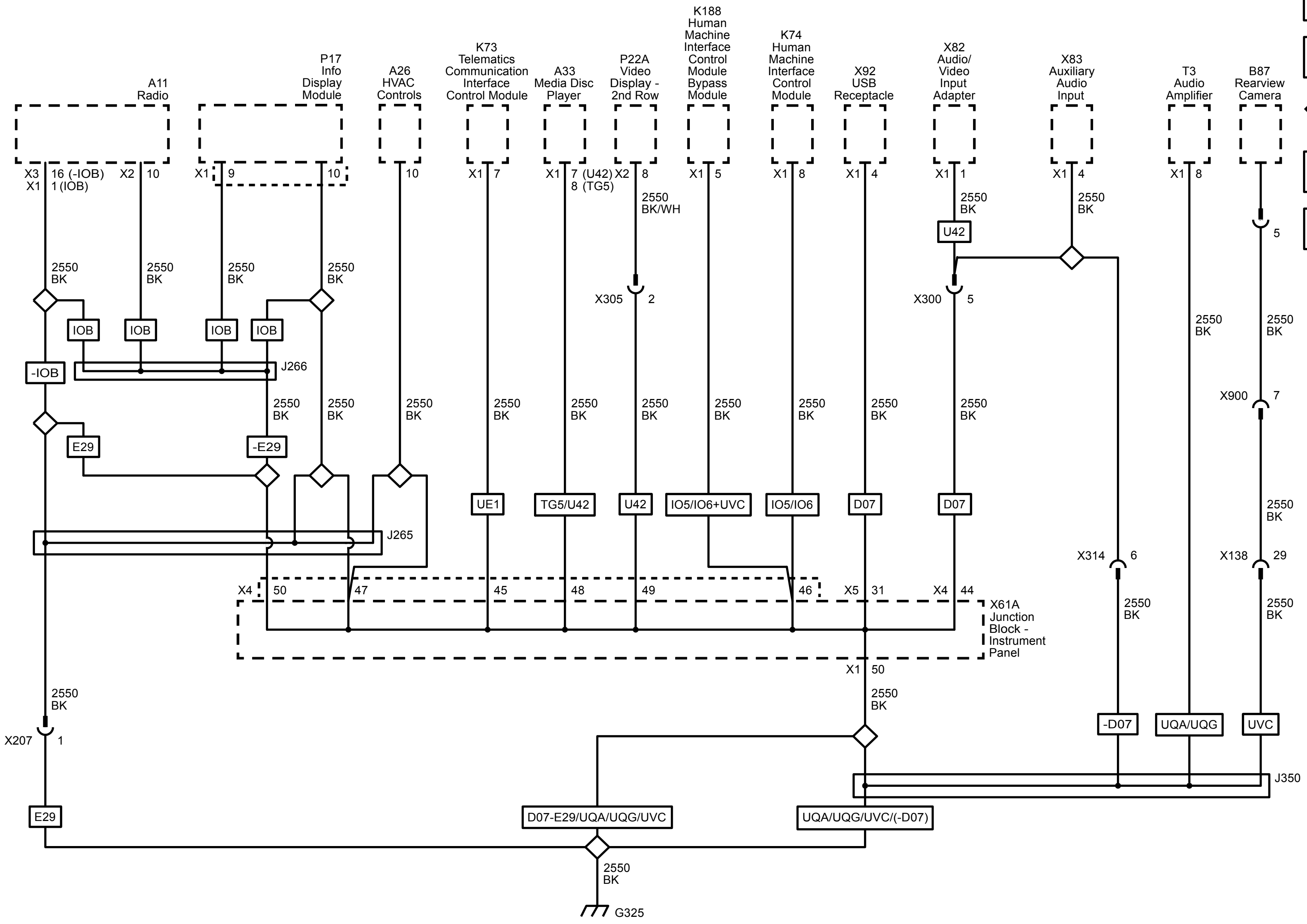
# G311 (1500)


M73A Seat Blower Motor - Driver Back
E14A Seat Heating Element - Driver Back
M73C Seat Blower Motor - Driver Cushion
E14B Seat Heating Element - Driver Cushion
S64D Seat Adjuster Switch - Driver
A9A Outside Rearview Mirror - Driver
E17D Outside Rearview Mirror Glass - Driver
E4Y Turn Signal Repeater Lamp - Left
A23D Door Latch Assembly - Driver
M74D Window Motor - Driver
S79D Window Switch - Driver
S52 Outside Rearview Mirror Switch
E63D Flood Lamp - Driver Door Handle
S13D Door Lock Switch - Driver
3
2
3
2
X1 6 (A45)
X1 2 (-A45)
X2 A
X3 2
3
1
1
5 (-A45)
3 (A45)
2
1 (-A31)
5 (A31)
1150 BK
J318
KQV
-KQV
J505
X510 11
5
X505 23
17
X506 7
DL3/DL8/DPN/DQS
A31
A31
A31
-A31
J515
P45LR Seat Haptic Movement Motor - Driver Left Rear
P45RR Seat Haptic Movement Motor - Driver Right Rear
K40 Seat Memory Control Module
X312 5
2
2
X2 5
A23LR Door Latch Assembly - Left Rear
S79LR Window Switch - Left Rear
3
3
5
UFL/UHX
UFL/UHX
A45/UFL/UHX
KQV
J313
KA1/KQV
-KA1/KQV
J715
X310 11
X500 2
X700 2
A95/AG1/AN3/B3F
G311

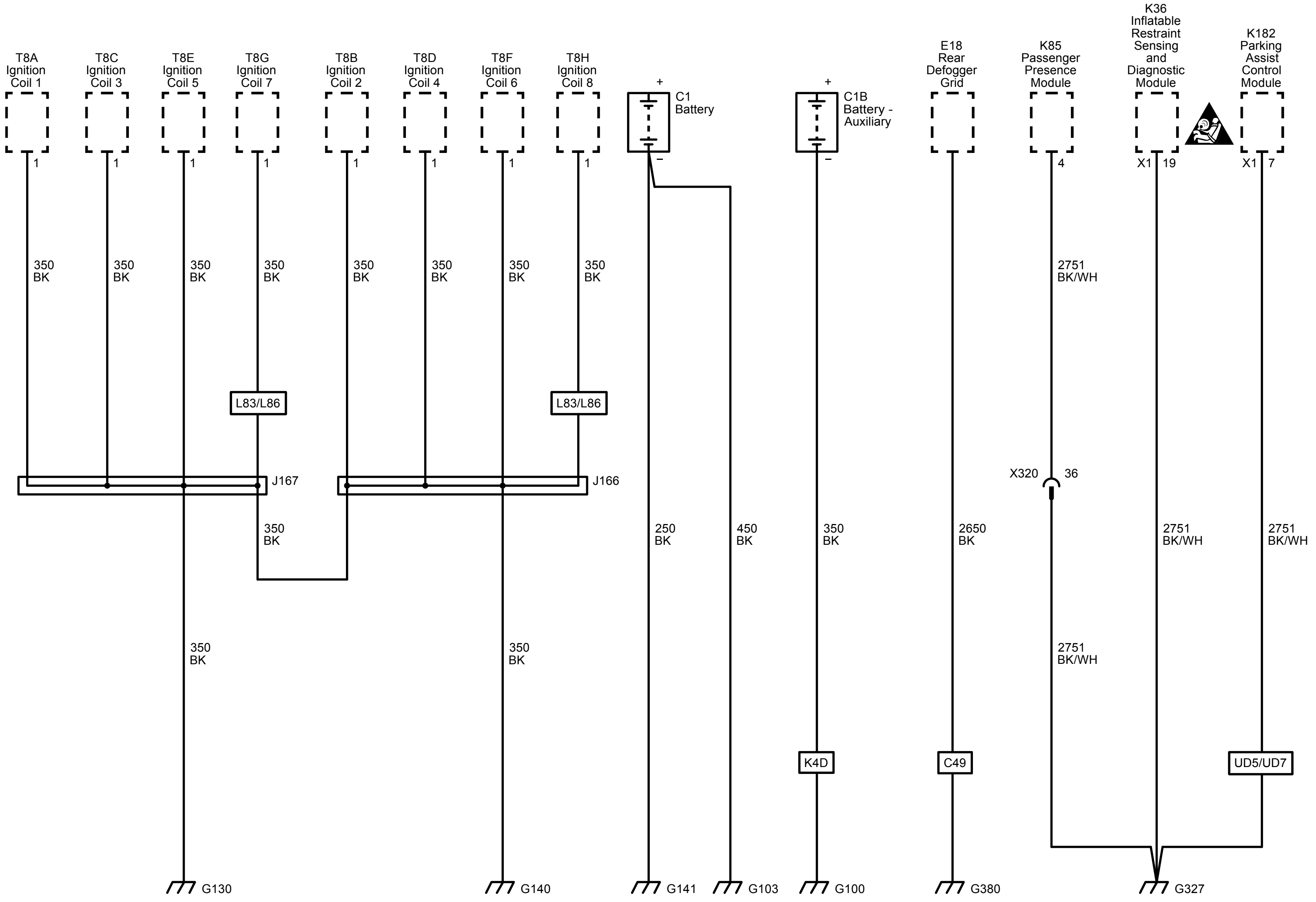
## G312 (1500)


M73B Seat Blower Motor - Passenger Back
E14C Seat Heating Element - Passenger Back
M73D Seat Blower Motor - Passenger Cushion
E14D Seat Heating Element - Passenger Cushion
K29 Seat Heating Control Module
S64P Seat Adjuster Switch - Passenger
X80E Accessory Power Receptacle - Center Seat
A9B Outside Rearview Mirror - Passenger
E17P Outside Rearview Mirror Glass - Passenger
E4Z Turn Signal Repeater Lamp - Right
A23P Door Latch Assembly - Passenger
S79P Window Switch - Passenger
E63P Flood Lamp - Passenger Door Handle
S13P Door Lock Switch - Passenger
A23RR Door Latch Assembly - Right Rear
S79RR Window Switch - Right Rear
3
2
3
2
X1 8
X1 5
C
X2 A
X3 2
3
X1 1
2
1 (-A31)
5 (A31)
3
5
1250 BK
J328
KQV
-KQV
X322 3
KQV
KA1
J323
KA1/KQV
-KA1/KQV
X320 11
X314 16
8
X80D Accessory Power Receptacle - Center Console Compartment
C
AG1/B3F
J362
A95/AN3
AZ3/B3F
AE7
X610 11
5
X605 15
17
X606 7
J605
DL3/DL8/DPN/DQS
A31
A31
-A31
J615
J815
X600 2
X800 2
A4 Hybrid/EV Battery Pack
K114B Hybrid/EV Powertrain Control Module 2
X3 7
G14 Hybrid/EV Battery Pack Cooling Fan
1
X363 1
-HP5
HP5
J366
G312

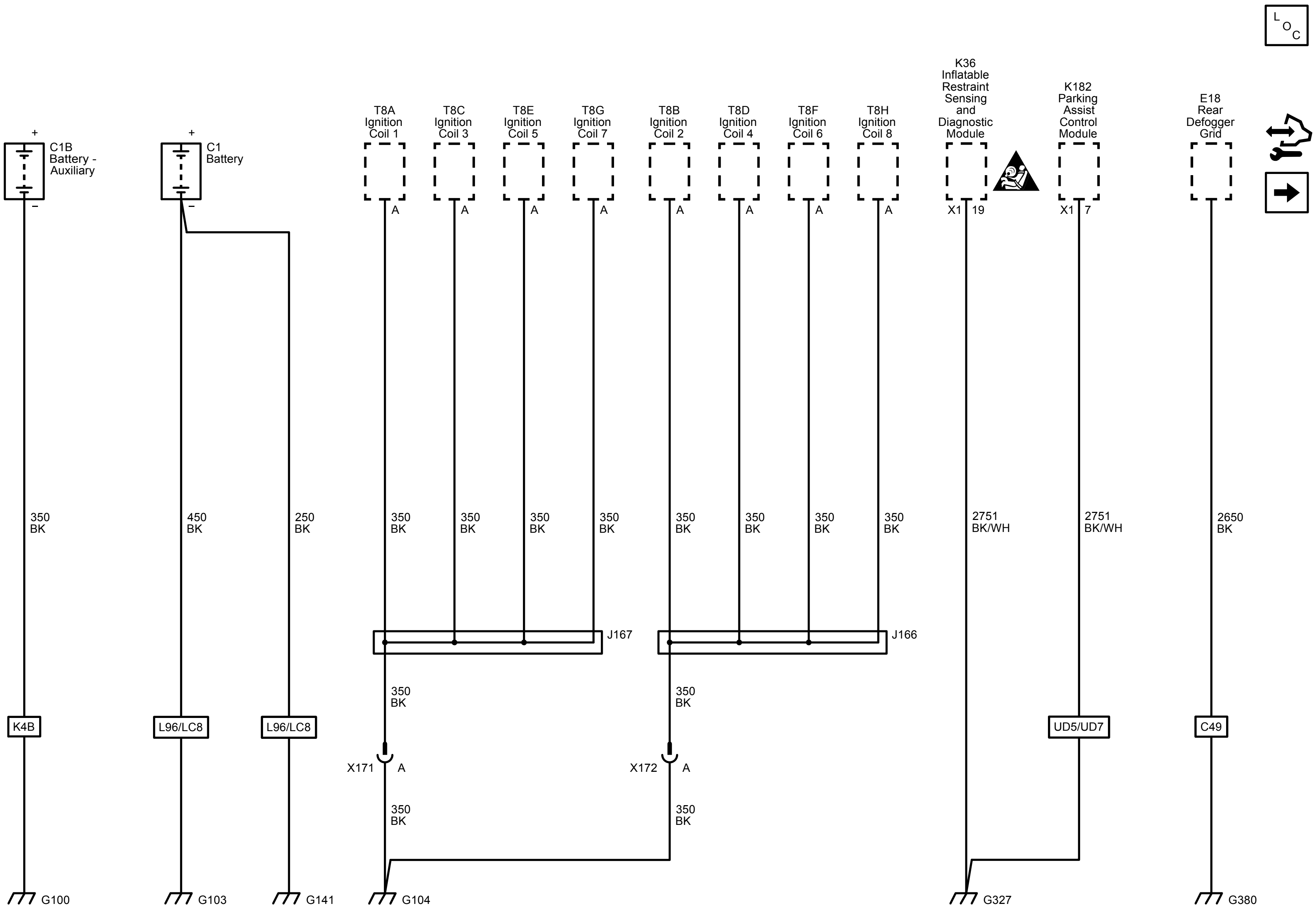
## G325 (1500)


A11 Radio
P17 Info Display Module
A26 HVAC Controls
K73 Telematics Communication Interface Control Module
A33 Media Disc Player
P22A Video Display - 2nd Row
K188 Human Machine Interface Control Module Bypass Module
K74 Human Machine Interface Control Module
X92 USB Receptacle
X82 Audio/ Video Input Adapter
X83 Auxiliary Audio Input
T3 Audio Amplifier
B87 Rearview Camera
X3 16 (-IOB)
X1 1 (IOB)
X2 10
X1 9
10
10
X1 7
X1 7 (U42)
8 (TG5)
X2 8
X1 5
X1 8
X1 4
X1 1
X1 4
X1 8
2550 BK
2550 BK/WH
U42
X305 2
X300 5
5
IOB
IOB
IOB
IOB
-IOB
J266
E29
-E29
J265
UE1
TG5/U42
U42
IO5/IO6+UVC
IO5/IO6
D07
D07
X900 7
X314 6
X138 29
X4 50
47
45
48
49
46
X5 31
X4 44
X61A Junction Block - Instrument Panel
X1 50
X207 1
-D07
UQA/UQG
UVC
J350
E29
D07-E29/UQA/UQG/UVC
UQA/UQG/UVC/(-D07)
G325

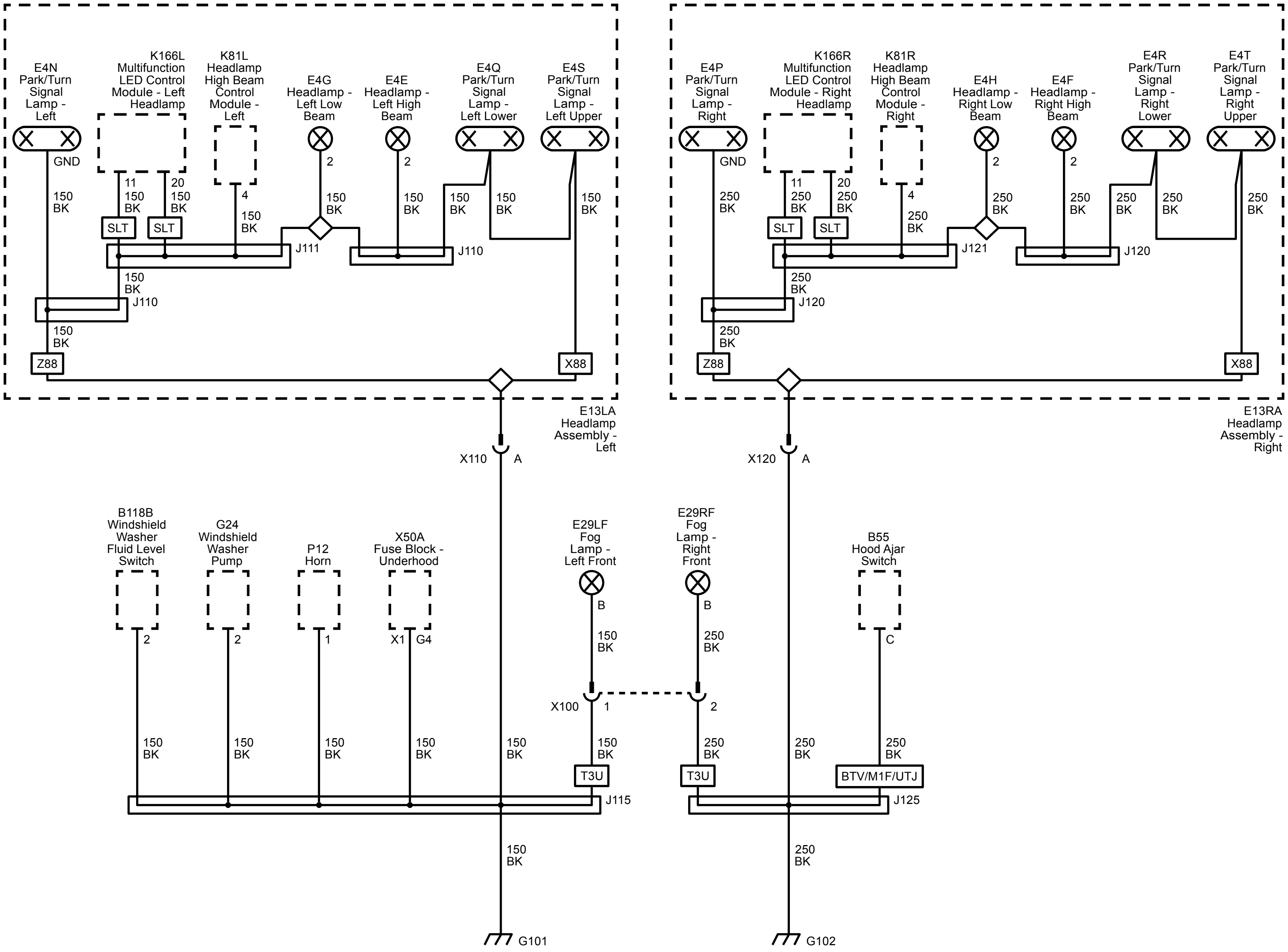
## G100, G103, G108, G130, G140, G141, G237, and G380 (1500)


T8A Ignition Coil 1
T8C Ignition Coil 3
T8E Ignition Coil 5
T8G Ignition Coil 7
T8B Ignition Coil 2
T8D Ignition Coil 4
T8F Ignition Coil 6
T8H Ignition Coil 8
+
C1 Battery
−
+
C1B Battery - Auxiliary
−
E18 Rear Defogger Grid
K85 Passenger Presence Module
K36 Inflatable Restraint Sensing and Diagnostic Module
K182 Parking Assist Control Module
1
1
1
1
1
1
1
1
4
X1 19
X1 7
350 BK
350 BK
350 BK
350 BK
350 BK
350 BK
350 BK
350 BK
2751 BK/WH
L83/L86
L83/L86
J167
J166
X320 36
350 BK
250 BK
450 BK
350 BK
2650 BK
2751 BK/WH
2751 BK/WH
350 BK
350 BK
2751 BK/WH
K4D
C49
UD5/UD7
G130
G140
G141
G103
G100
G380
G327

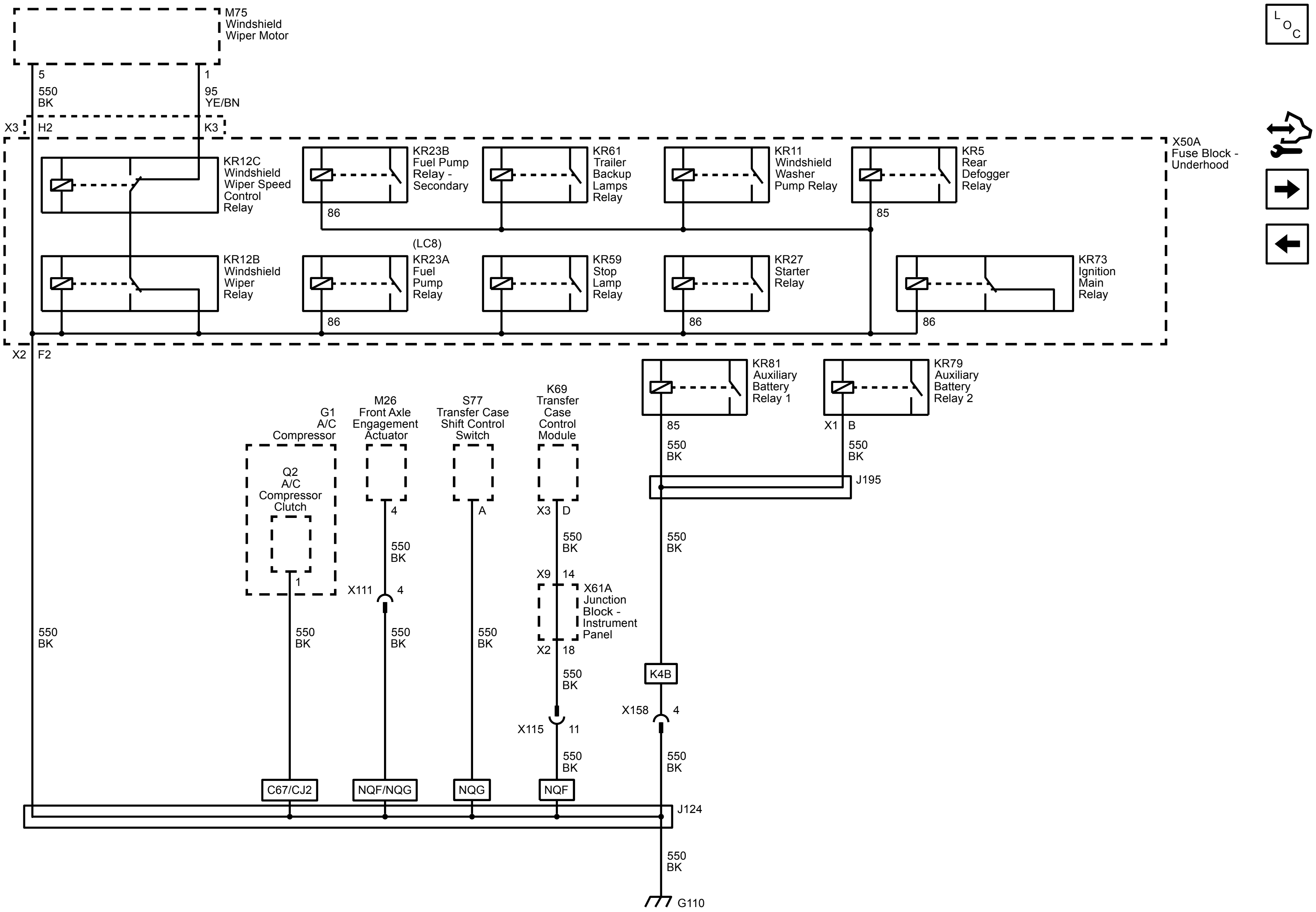
## G100, G103, G104, G141, G327, and G380 (2500/3500)


C1B Battery - Auxiliary
C1 Battery
T8A Ignition Coil 1
T8C Ignition Coil 3
T8E Ignition Coil 5
T8G Ignition Coil 7
T8B Ignition Coil 2
T8D Ignition Coil 4
T8F Ignition Coil 6
T8H Ignition Coil 8
K36 Inflatable Restraint Sensing and Diagnostic Module
K182 Parking Assist Control Module
E18 Rear Defogger Grid
L O C
A
X1 19
X1 7
350 BK
450 BK
250 BK
2751 BK/WH
2650 BK
J167
J166
K4B
L96/LC8
UD5/UD7
C49
X171 A
X172 A
G100
G103
G141
G104
G327
G380

## G101 and G102 (2500/3500)

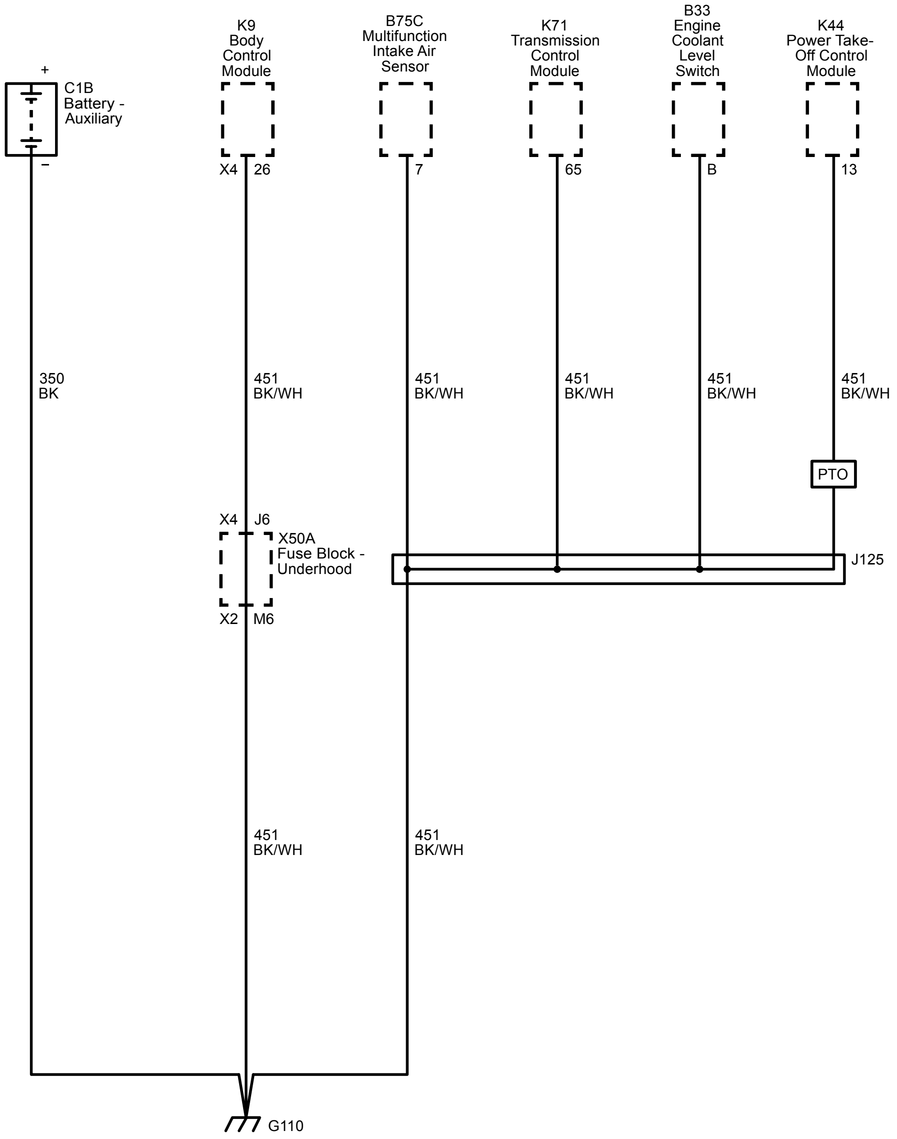

E4N Park/Turn Signal Lamp - Left
K166L Multifunction LED Control Module - Left Headlamp
K81L Headlamp High Beam Control Module - Left
E4G Headlamp - Left Low Beam
E4E Headlamp - Left High Beam
E4Q Park/Turn Signal Lamp - Left Lower
E4S Park/Turn Signal Lamp - Left Upper
GND
11
20
4
2
150 BK
SLT
J111
J110
Z88
X88
E13LA Headlamp Assembly - Left
X110
A
E4P Park/Turn Signal Lamp - Right
K166R Multifunction LED Control Module - Right Headlamp
K81R Headlamp High Beam Control Module - Right
E4H Headlamp - Right Low Beam
E4F Headlamp - Right High Beam
E4R Park/Turn Signal Lamp - Right Lower
E4T Park/Turn Signal Lamp - Right Upper
250 BK
J121
J120
E13RA Headlamp Assembly - Right
X120
B118B Windshield Washer Fluid Level Switch
G24 Windshield Washer Pump
P12 Horn
X50A Fuse Block - Underhood
E29LF Fog Lamp - Left Front
E29RF Fog Lamp - Right Front
B55 Hood Ajar Switch
1
X1
G4
B
C
X100
T3U
BTV/M1F/UTJ
J115
J125
G101
G102

# G110 (2500/3500 with L96 or LC8)



M75
Windshield
Wiper Motor
5
550
BK
1
95
YE/BN
X3
H2
K3
X50A
Fuse Block -
Underhood
KR12C
Windshield
Wiper Speed
Control
Relay
KR23B
Fuel Pump
Relay -
Secondary
KR61
Trailer
Backup
Lamps
Relay
KR11
Windshield
Washer
Pump Relay
KR5
Rear
Defogger
Relay
86
85
(LC8)
KR12B
Windshield
Wiper
Relay
KR23A
Fuel
Pump
Relay
KR59
Stop
Lamp
Relay
KR27
Starter
Relay
KR73
Ignition
Main
Relay
86
86
86
X2
F2
KR81
Auxiliary
Battery
Relay 1
KR79
Auxiliary
Battery
Relay 2
85
X1
B
550
BK
550
BK
J195
G1
A/C
Compressor
Q2
A/C
Compressor
Clutch
1
M26
Front Axle
Engagement
Actuator
4
550
BK
X111
4
S77
Transfer Case
Shift Control
Switch
A
K69
Transfer
Case
Control
Module
X3
D
550
BK
X9
14
X61A
Junction
Block -
Instrument
Panel
X2
18
550
BK
X115
11
550
BK
550
BK
K4B
X158
4
550
BK
550
BK
550
BK
550
BK
550
BK
550
BK
C67/CJ2
NQF/NQG
NQG
NQF
J124
550
BK
G110
L
O
C

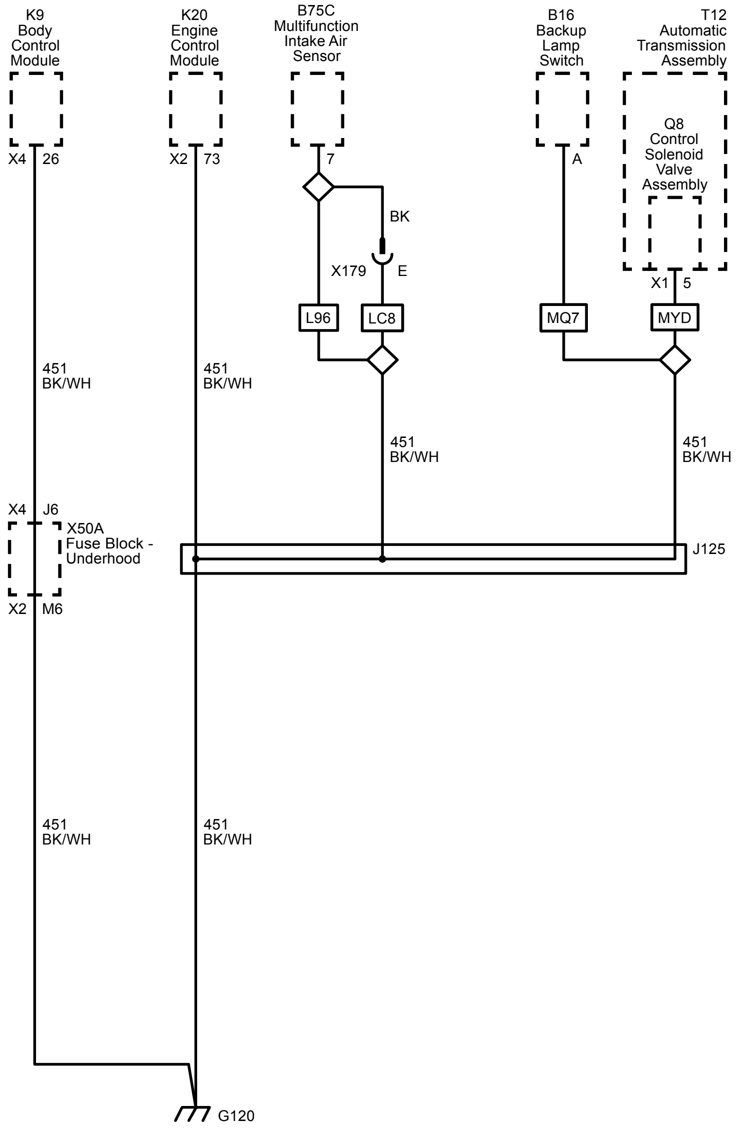
# G110 (2500/3500 with L5P)



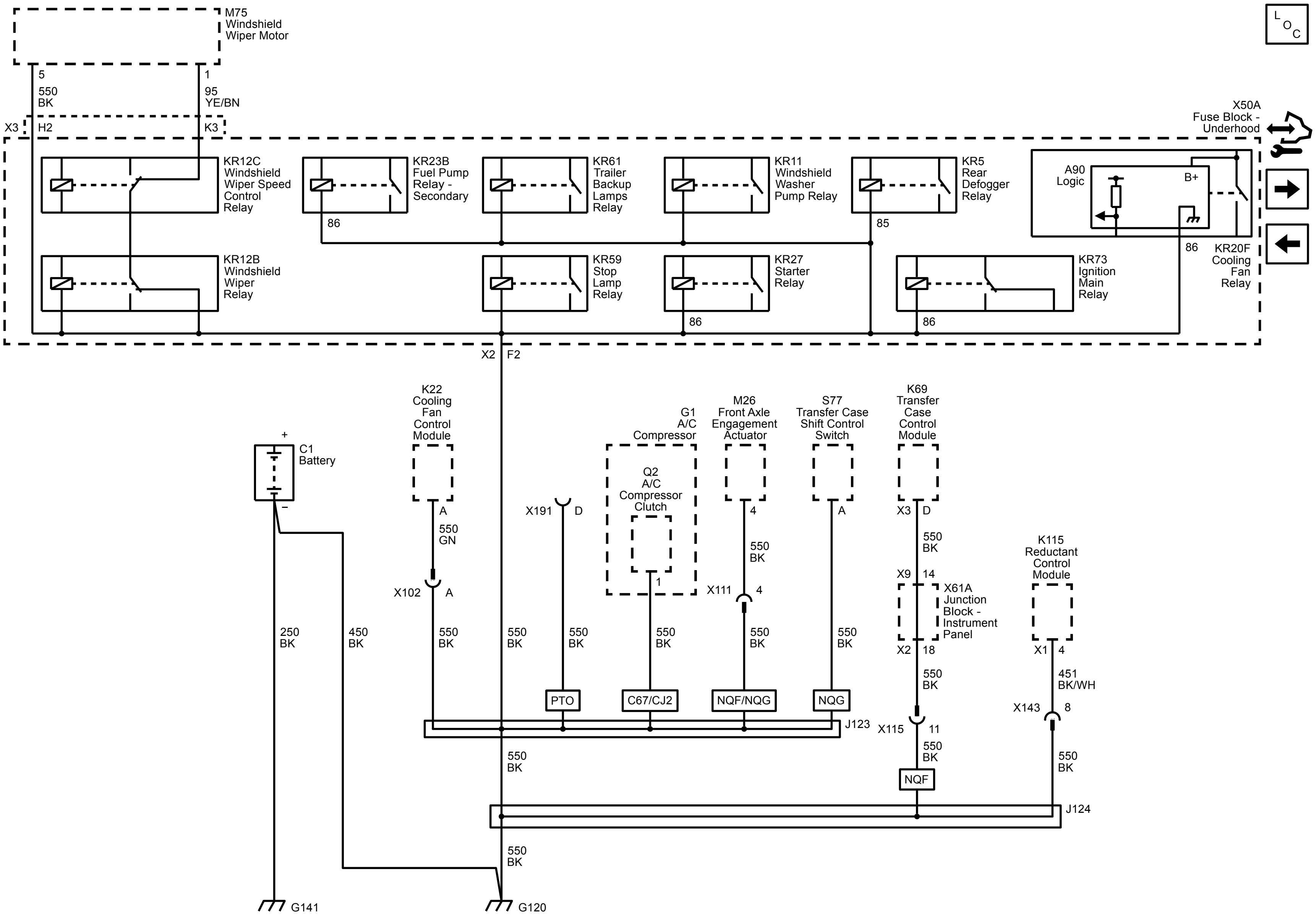
C1B Battery - Auxiliary
+
-
K9 Body Control Module
X4 26
B75C Multifunction Intake Air Sensor
7
K71 Transmission Control Module
65
B33 Engine Coolant Level Switch
B
K44 Power Take-Off Control Module
13
350 BK
451 BK/WH
451 BK/WH
451 BK/WH
451 BK/WH
451 BK/WH
PTO
X4 J6
X50A Fuse Block - Underhood
X2 M6
J125
451 BK/WH
451 BK/WH
G110

# G120 (2500/3500 with L96 or LC8)

LOC
DESC

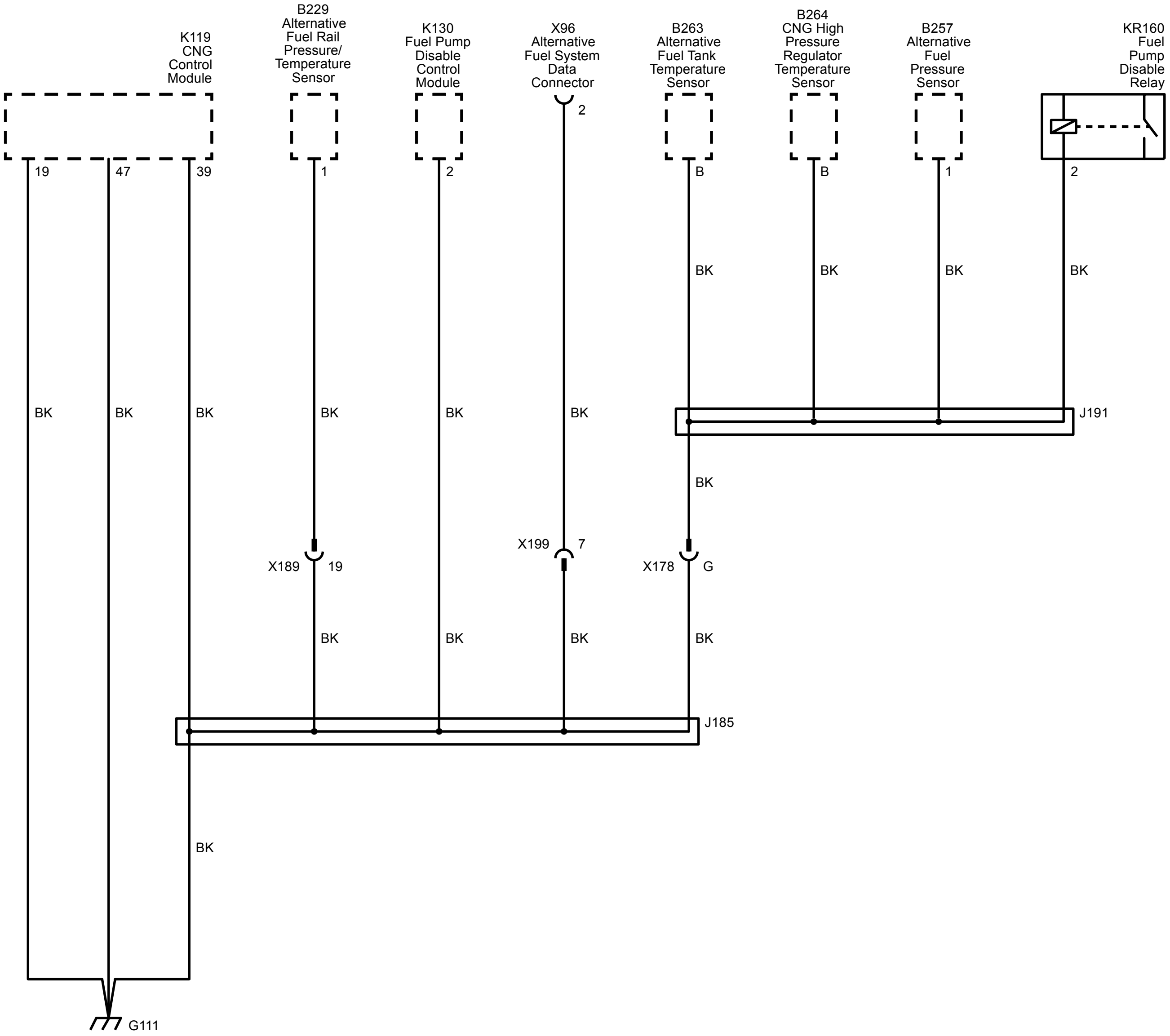

K9
Body
Control
Module
X4 26
K20
Engine
Control
Module
X2 73
B75C
Multifunction
Intake Air
Sensor
7
BK
X179 E
L96
LC8
B16
Backup
Lamp
Switch
A
T12
Automatic
Transmission
Assembly
Q8
Control
Solenoid
Valve
Assembly
X1 5
MQ7
MYD
451
BK/WH
451
BK/WH
451
BK/WH
451
BK/WH
X4 J6
X50A
Fuse Block -
Underhood
X2 M6
J125
451
BK/WH
451
BK/WH
G120

## G120 (2500/3500 with L5P)

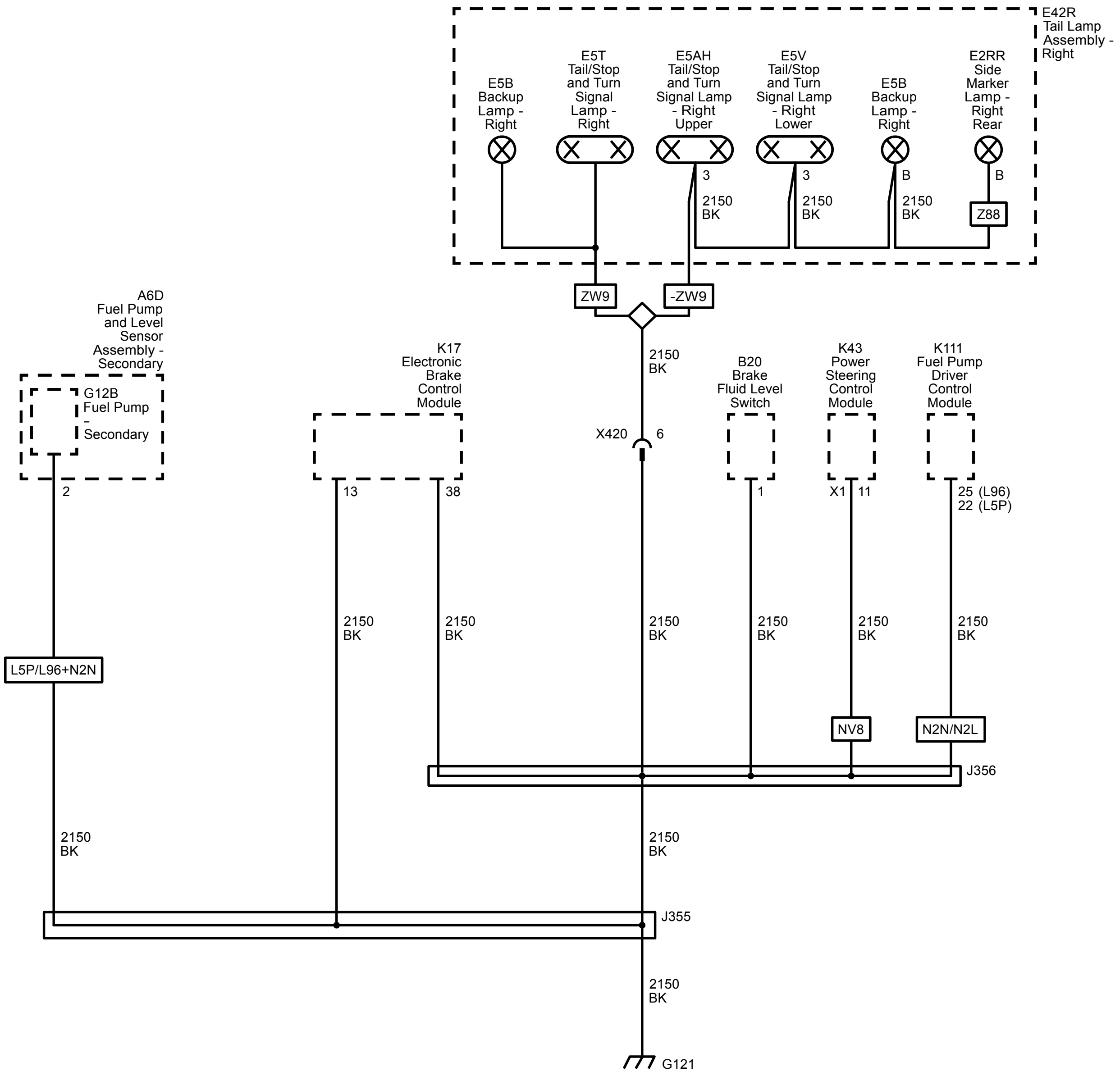


M75
Windshield
Wiper Motor
L O C
5
550
BK
1
95
YE/BN
X3
H2
K3
X50A
Fuse Block -
Underhood
KR12C
Windshield
Wiper Speed
Control
Relay
KR23B
Fuel Pump
Relay -
Secondary
86
KR61
Trailer
Backup
Lamps
Relay
KR11
Windshield
Washer
Pump Relay
KR5
Rear
Defogger
Relay
85
A90
Logic
B+
86
KR20F
Cooling
Fan
Relay
KR12B
Windshield
Wiper
Relay
KR59
Stop
Lamp
Relay
KR27
Starter
Relay
86
KR73
Ignition
Main
Relay
86
X2
F2
K22
Cooling
Fan
Control
Module
G1
A/C
Compressor
M26
Front Axle
Engagement
Actuator
S77
Transfer Case
Shift Control
Switch
K69
Transfer
Case
Control
Module
+
C1
Battery
-
Q2
A/C
Compressor
Clutch
A
550
GN
X191
D
4
A
X3
D
550
BK
550
BK
X102
A
1
X111
4
X9
14
X61A
Junction
Block -
Instrument
Panel
K115
Reductant
Control
Module
250
BK
450
BK
550
BK
550
BK
550
BK
550
BK
550
BK
550
BK
X2
18
X1
4
550
BK
451
BK/WH
PTO
C67/CJ2
NQF/NQG
NQG
J123
X115
11
X143
8
550
BK
550
BK
550
BK
NQF
J124
550
BK
G141
G120

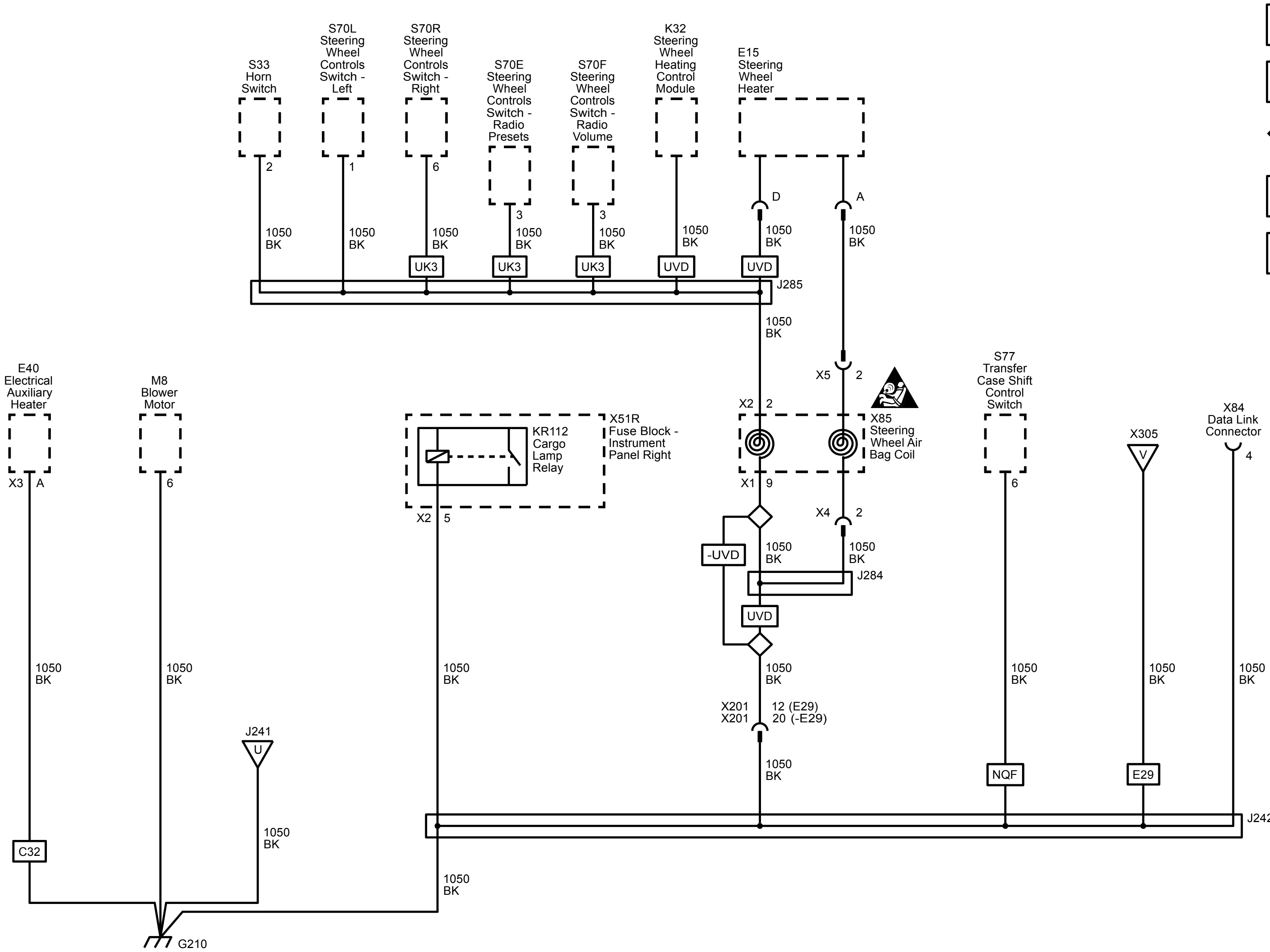
## G111 (2500/3500 with LC8)


K119
CNG
Control
Module
B229
Alternative
Fuel Rail
Pressure/
Temperature
Sensor
K130
Fuel Pump
Disable
Control
Module
X96
Alternative
Fuel System
Data
Connector
B263
Alternative
Fuel Tank
Temperature
Sensor
B264
CNG High
Pressure
Regulator
Temperature
Sensor
B257
Alternative
Fuel
Pressure
Sensor
KR160
Fuel
Pump
Disable
Relay
19
47
39
1
2
2
B
B
1
2
BK
BK
BK
BK
BK
BK
BK
BK
BK
BK
BK
BK
BK
J191
BK
X189
19
X199
7
X178
G
BK
BK
BK
BK
J185
BK
G111

## G121 (2500/3500)

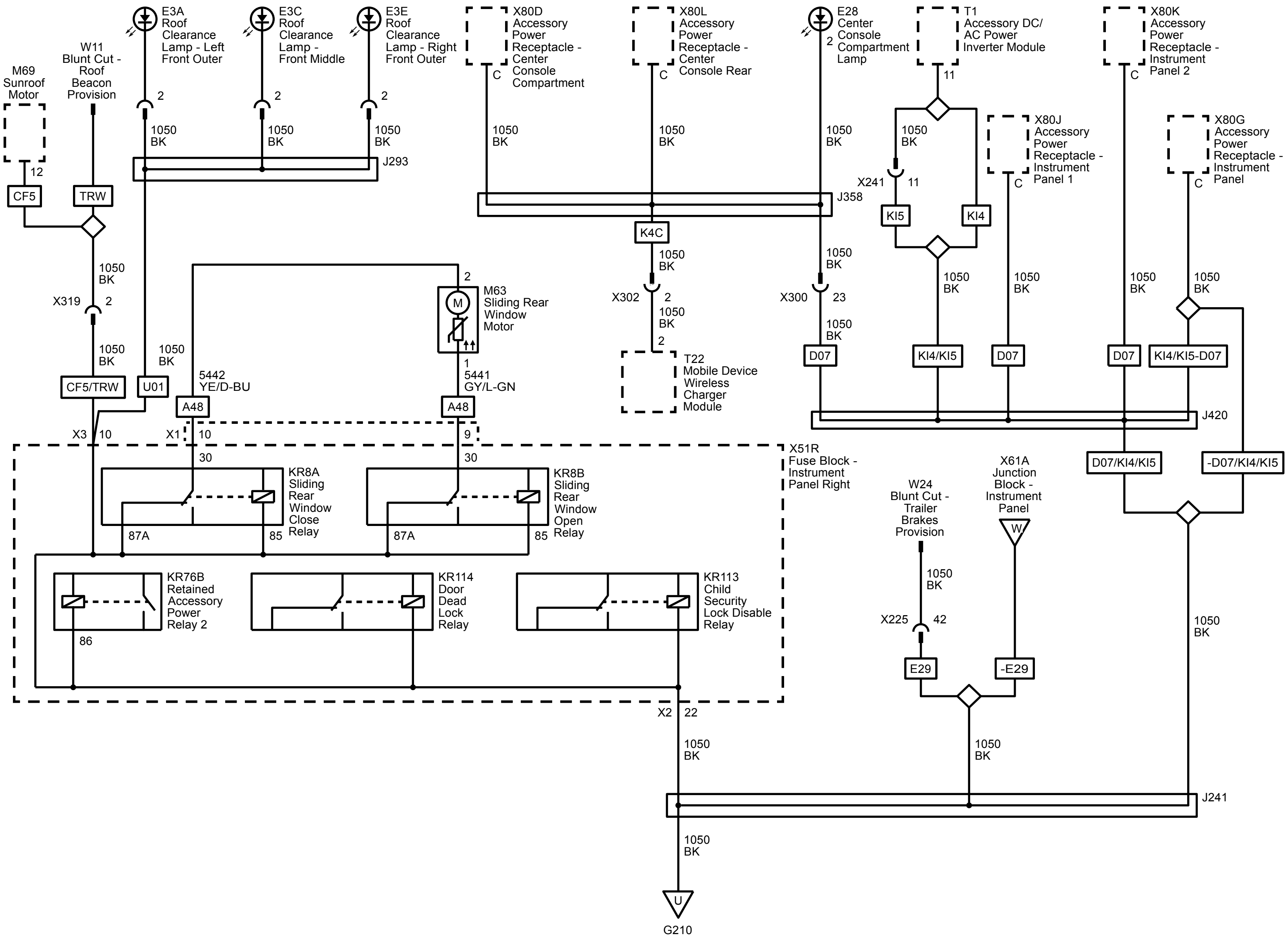

E42R
Tail Lamp
Assembly -
Right
E5B
Backup
Lamp -
Right
E5T
Tail/Stop
and Turn
Signal
Lamp -
Right
E5AH
Tail/Stop
and Turn
Signal Lamp
- Right
Upper
E5V
Tail/Stop
and Turn
Signal Lamp
- Right
Lower
E5B
Backup
Lamp -
Right
E2RR
Side
Marker
Lamp -
Right
Rear
3
2150
BK
3
2150
BK
B
2150
BK
B
Z88
ZW9
-ZW9
2150
BK
A6D
Fuel Pump
and Level
Sensor
Assembly -
Secondary
G12B
Fuel Pump
-
Secondary
2
K17
Electronic
Brake
Control
Module
13
38
X420
6
B20
Brake
Fluid Level
Switch
1
K43
Power
Steering
Control
Module
X1
11
K111
Fuel Pump
Driver
Control
Module
25 (L96)
22 (L5P)
L5P/L96+N2N
2150
BK
2150
BK
2150
BK
2150
BK
2150
BK
2150
BK
2150
BK
NV8
N2N/N2L
J356
2150
BK
2150
BK
J355
2150
BK
G121

# G210 1 of 3 (2500/3500)



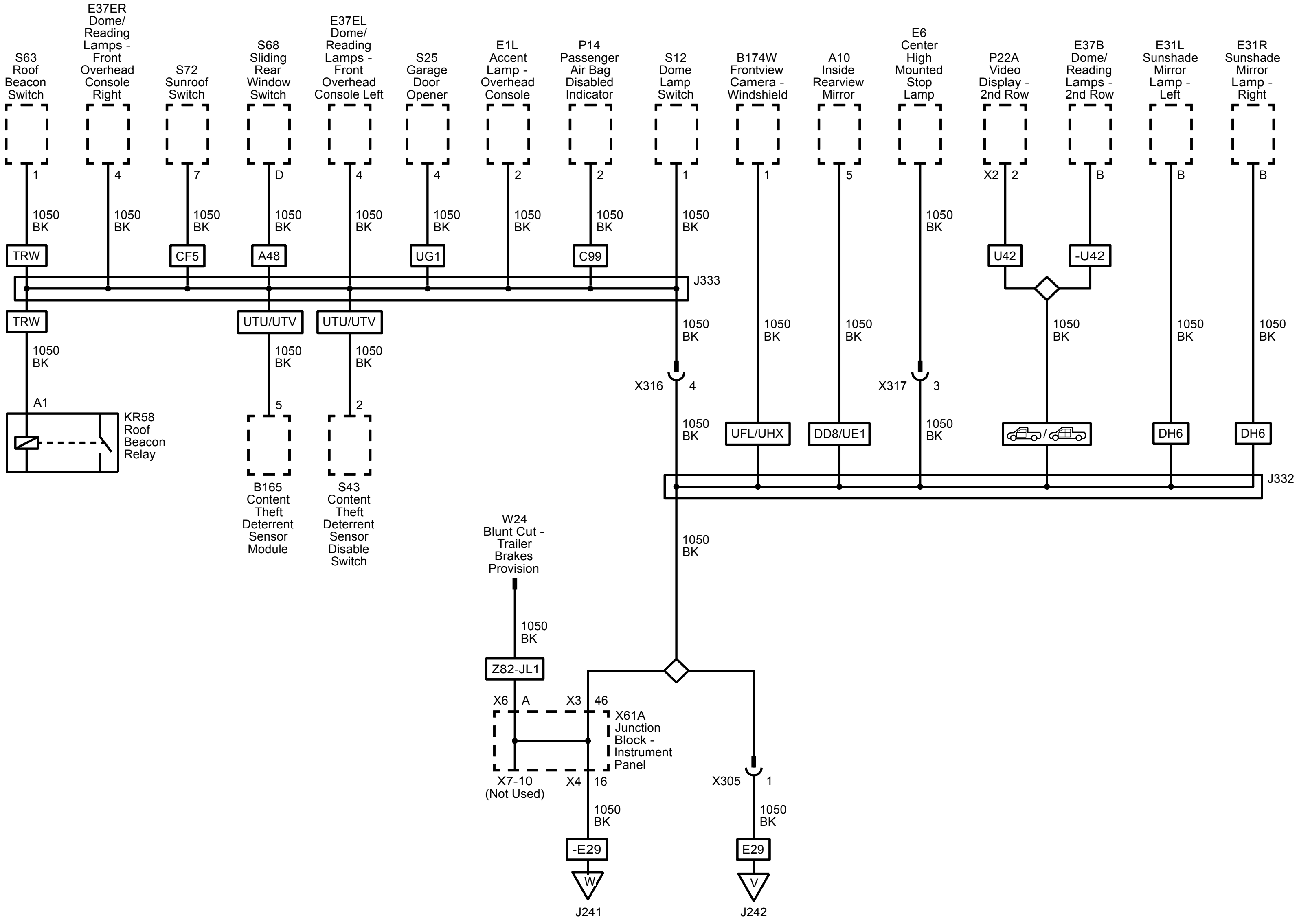
S33 Horn Switch
S70L Steering Wheel Controls Switch - Left
S70R Steering Wheel Controls Switch - Right
S70E Steering Wheel Controls Switch - Radio Presets
S70F Steering Wheel Controls Switch - Radio Volume
K32 Steering Wheel Heating Control Module
E15 Steering Wheel Heater
2
1
6
3
3
D
A
1050 BK
UK3
UK3
UK3
UVD
UVD
J285
X5
2
X2
2
X85 Steering Wheel Air Bag Coil
X1
9
X4
2
-UVD
J284
UVD
X201
X201
12 (E29)
20 (-E29)
E40 Electrical Auxiliary Heater
X3
A
M8 Blower Motor
6
X51R Fuse Block - Instrument Panel Right
KR112 Cargo Lamp Relay
X2
5
S77 Transfer Case Shift Control Switch
6
X305
V
X84 Data Link Connector
4
J241
U
C32
NQF
E29
J242
G210

# G210 2 of 3 (2500/3500)

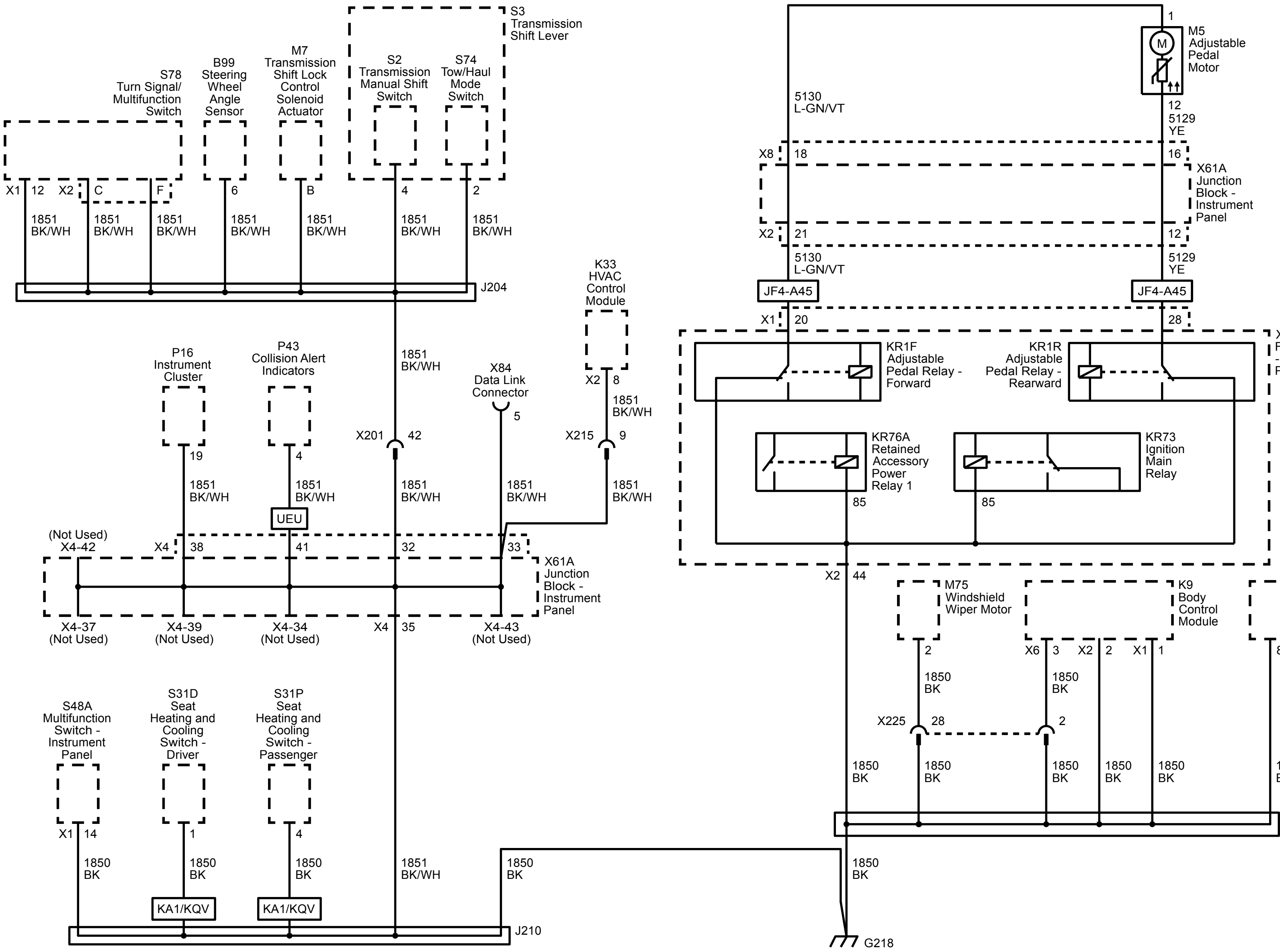


E3A Roof Clearance Lamp - Left Front Outer
E3C Roof Clearance Lamp - Front Middle
E3E Roof Clearance Lamp - Right Front Outer
X80D Accessory Power Receptacle - Center Console Compartment
X80L Accessory Power Receptacle - Center Console Rear
E28 Center Console Compartment Lamp
T1 Accessory DC/AC Power Inverter Module
X80K Accessory Power Receptacle - Instrument Panel 2
W11 Blunt Cut - Roof Beacon Provision
M69 Sunroof Motor
X80J Accessory Power Receptacle - Instrument Panel 1
X80G Accessory Power Receptacle - Instrument Panel
2
2
2
2
C
C
C
C
C
11
12
1050 BK
J293
J358
J241
J420
CF5
TRW
CF5/TRW
U01
X319
2
K4C
X302
2
X300
23
X241
11
KI5
KI4
D07
KI4/KI5
KI4/KI5-D07
D07/KI4/KI5
-D07/KI4/KI5
M63 Sliding Rear Window Motor
M
1
5441 GY/L-GN
5442 YE/D-BU
A48
A48
T22 Mobile Device Wireless Charger Module
X3
10
X1
10
9
30
30
X51R Fuse Block - Instrument Panel Right
KR8A Sliding Rear Window Close Relay
KR8B Sliding Rear Window Open Relay
87A
85
87A
85
KR76B Retained Accessory Power Relay 2
86
KR114 Door Dead Lock Relay
KR113 Child Security Lock Disable Relay
X2
22
W24 Blunt Cut - Trailer Brakes Provision
X61A Junction Block - Instrument Panel
W
X225
42
E29
-E29
U
G210

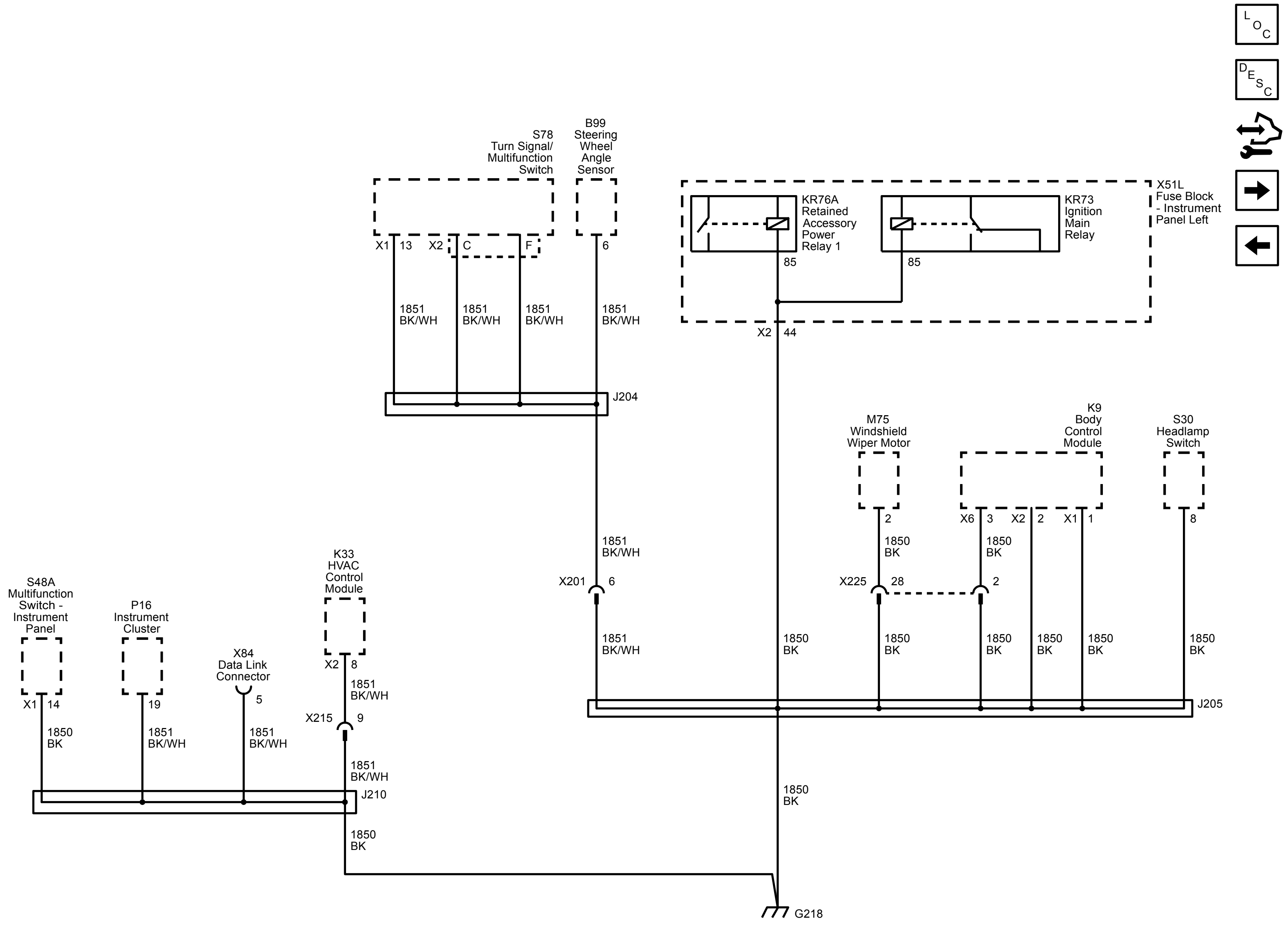
## G210 (2500/3500)


S63 Roof Beacon Switch
E37ER Dome/ Reading Lamps - Front Overhead Console Right
S72 Sunroof Switch
S68 Sliding Rear Window Switch
E37EL Dome/ Reading Lamps - Front Overhead Console Left
S25 Garage Door Opener
E1L Accent Lamp - Overhead Console
P14 Passenger Air Bag Disabled Indicator
S12 Dome Lamp Switch
B174W Frontview Camera - Windshield
A10 Inside Rearview Mirror
E6 Center High Mounted Stop Lamp
P22A Video Display - 2nd Row
E37B Dome/ Reading Lamps - 2nd Row
E31L Sunshade Mirror Lamp - Left
E31R Sunshade Mirror Lamp - Right
1
4
7
D
4
4
2
2
1
1
5
X2 2
B
B
B
1050 BK
TRW
CF5
A48
UG1
C99
U42
-U42
J333
TRW
UTU/UTV
UTU/UTV
A1
KR58 Roof Beacon Relay
5
2
B165 Content Theft Deterrent Sensor Module
S43 Content Theft Deterrent Sensor Disable Switch
X316 4
X317 3
UFL/UHX
DD8/UE1
DH6
DH6
J332
W24 Blunt Cut - Trailer Brakes Provision
Z82-JL1
X6 A
X3 46
X61A Junction Block - Instrument Panel
X7-10 (Not Used)
X4 16
X305 1
-E29
E29
W
V
J241
J242

## G218 (2500/3500 except E29)

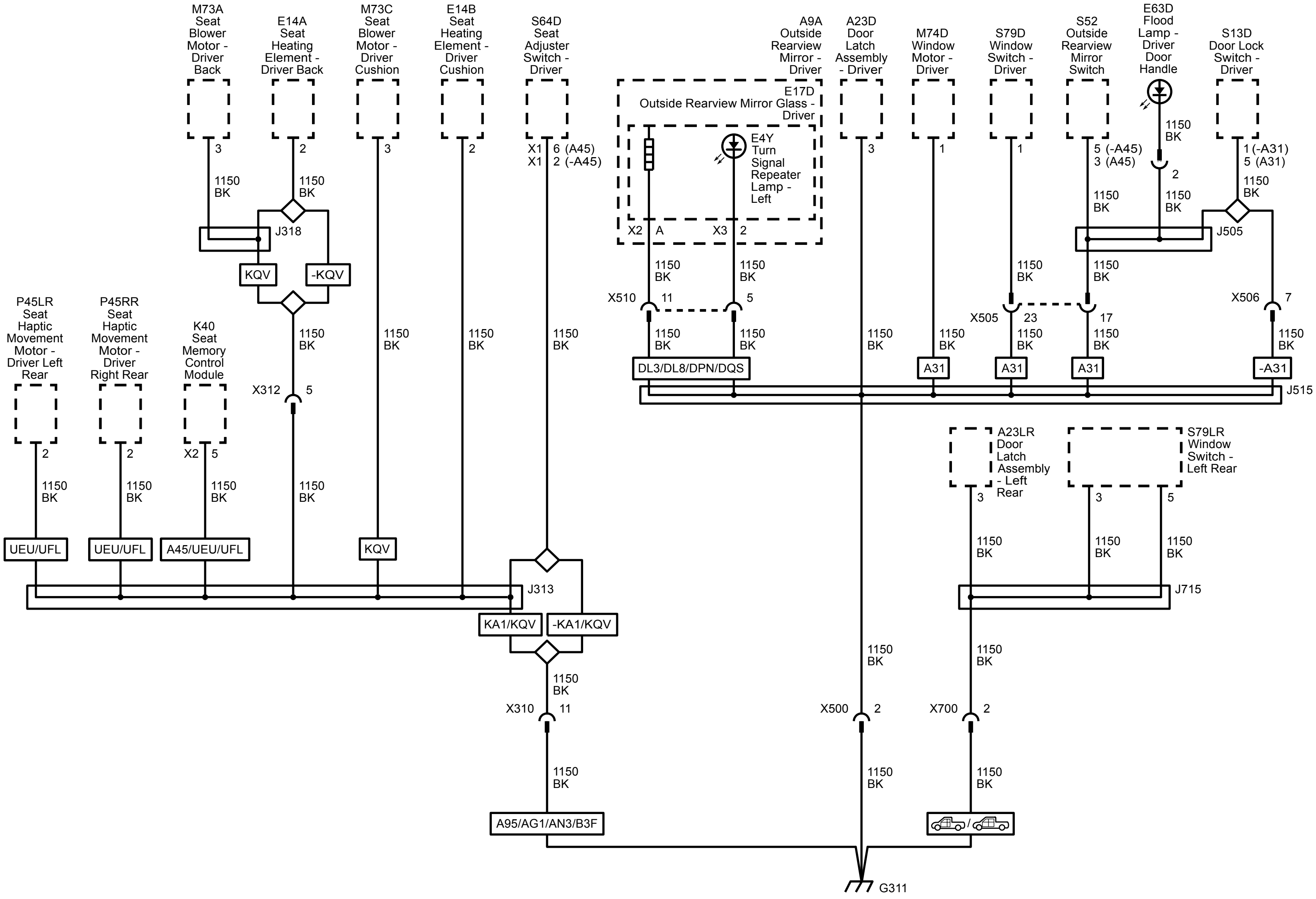

S78 Turn Signal/ Multifunction Switch
B99 Steering Wheel Angle Sensor
M7 Transmission Shift Lock Control Solenoid Actuator
S3 Transmission Shift Lever
S2 Transmission Manual Shift Switch
S74 Tow/Haul Mode Switch
X1 12
X2 C
F
6
B
4
2
1851 BK/WH
J204
K33 HVAC Control Module
X2 8
1851 BK/WH
X215 9
P16 Instrument Cluster
19
P43 Collision Alert Indicators
4
UEU
X84 Data Link Connector
5
X201 42
(Not Used) X4-42
X4 38
41
32
33
X61A Junction Block - Instrument Panel
X4-37 (Not Used)
X4-39 (Not Used)
X4-34 (Not Used)
X4 35
X4-43 (Not Used)
S48A Multifunction Switch - Instrument Panel
S31D Seat Heating and Cooling Switch - Driver
S31P Seat Heating and Cooling Switch - Passenger
X1 14
1
4
1850 BK
KA1/KQV
J210
M5 Adjustable Pedal Motor
M
5130 L-GN/VT
5129 YE
X8 18
16
12
X61A Junction Block - Instrument Panel
X2 21
12
JF4-A45
X1 20
28
X51L Fuse Block - Instrument Panel Left
KR1F Adjustable Pedal Relay - Forward
KR1R Adjustable Pedal Relay - Rearward
KR76A Retained Accessory Power Relay 1
KR73 Ignition Main Relay
85
X2 44
M75 Windshield Wiper Motor
K9 Body Control Module
S30 Headlamp Switch
2
X6 3
X2 2
X1 1
8
1850 BK
X225 28
2
J205
G218

## G218 (2500/3500 with E29)

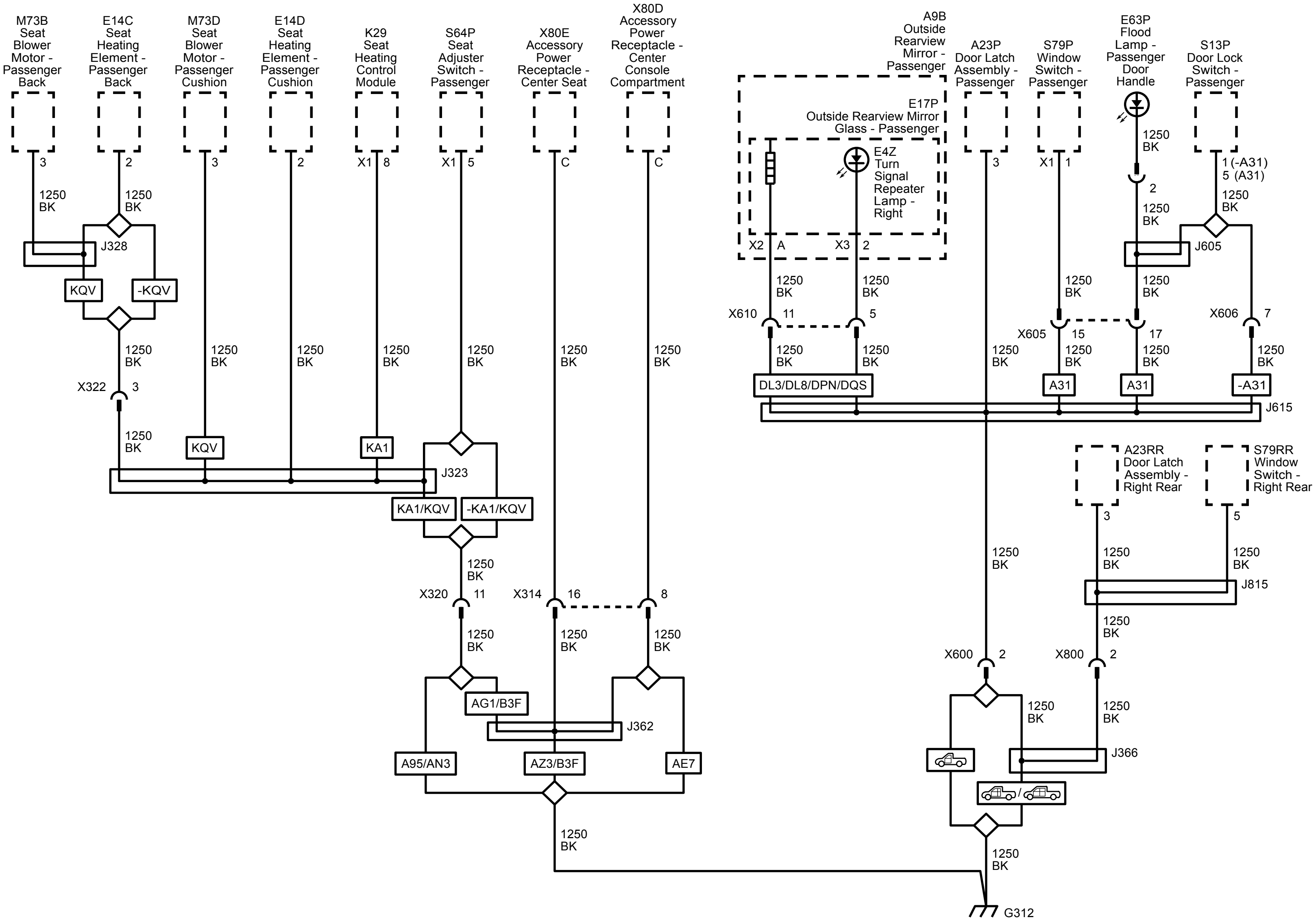


S78 Turn Signal/ Multifunction Switch
B99 Steering Wheel Angle Sensor
X1 13
X2 C
F
6
1851 BK/WH
J204
KR76A Retained Accessory Power Relay 1
KR73 Ignition Main Relay
X51L Fuse Block - Instrument Panel Left
85
X2 44
M75 Windshield Wiper Motor
K9 Body Control Module
S30 Headlamp Switch
2
X6 3
X2 2
X1 1
8
1850 BK
X201 6
X225 28
2
J205
S48A Multifunction Switch - Instrument Panel
P16 Instrument Cluster
X84 Data Link Connector
K33 HVAC Control Module
X1 14
19
5
X2 8
X215 9
J210
G218

## G311 (2500/3500)

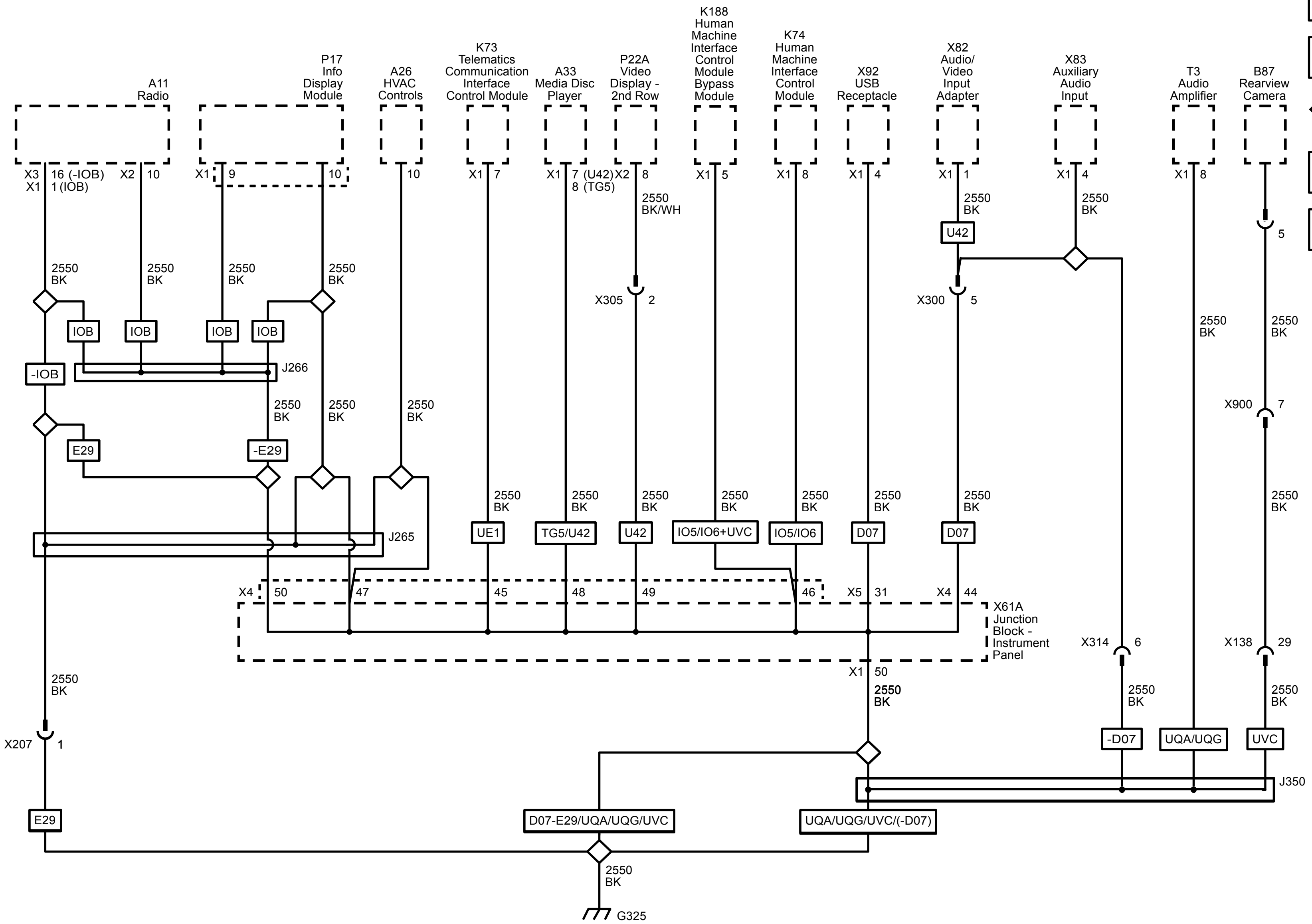

M73A Seat Blower Motor - Driver Back
E14A Seat Heating Element - Driver Back
M73C Seat Blower Motor - Driver Cushion
E14B Seat Heating Element - Driver Cushion
S64D Seat Adjuster Switch - Driver
A9A Outside Rearview Mirror - Driver
E17D Outside Rearview Mirror Glass - Driver
E4Y Turn Signal Repeater Lamp - Left
A23D Door Latch Assembly - Driver
M74D Window Motor - Driver
S79D Window Switch - Driver
S52 Outside Rearview Mirror Switch
E63D Flood Lamp - Driver Door Handle
S13D Door Lock Switch - Driver
3
2
3
2
X1 6 (A45)
X1 2 (-A45)
X2 A
X3 2
3
1
1
5 (-A45)
3 (A45)
2
1 (-A31)
5 (A31)
1150 BK
J318
KQV
-KQV
J505
X510 11
5
X505 23
17
X506 7
DL3/DL8/DPN/DQS
A31
A31
A31
-A31
J515
X312 5
P45LR Seat Haptic Movement Motor - Driver Left Rear
P45RR Seat Haptic Movement Motor - Driver Right Rear
K40 Seat Memory Control Module
2
2
X2 5
A23LR Door Latch Assembly - Left Rear
S79LR Window Switch - Left Rear
3
3
5
UEU/UFL
UEU/UFL
A45/UEU/UFL
KQV
J313
KA1/KQV
-KA1/KQV
J715
X310 11
X500 2
X700 2
A95/AG1/AN3/B3F
G311

## G312 (2500/3500)

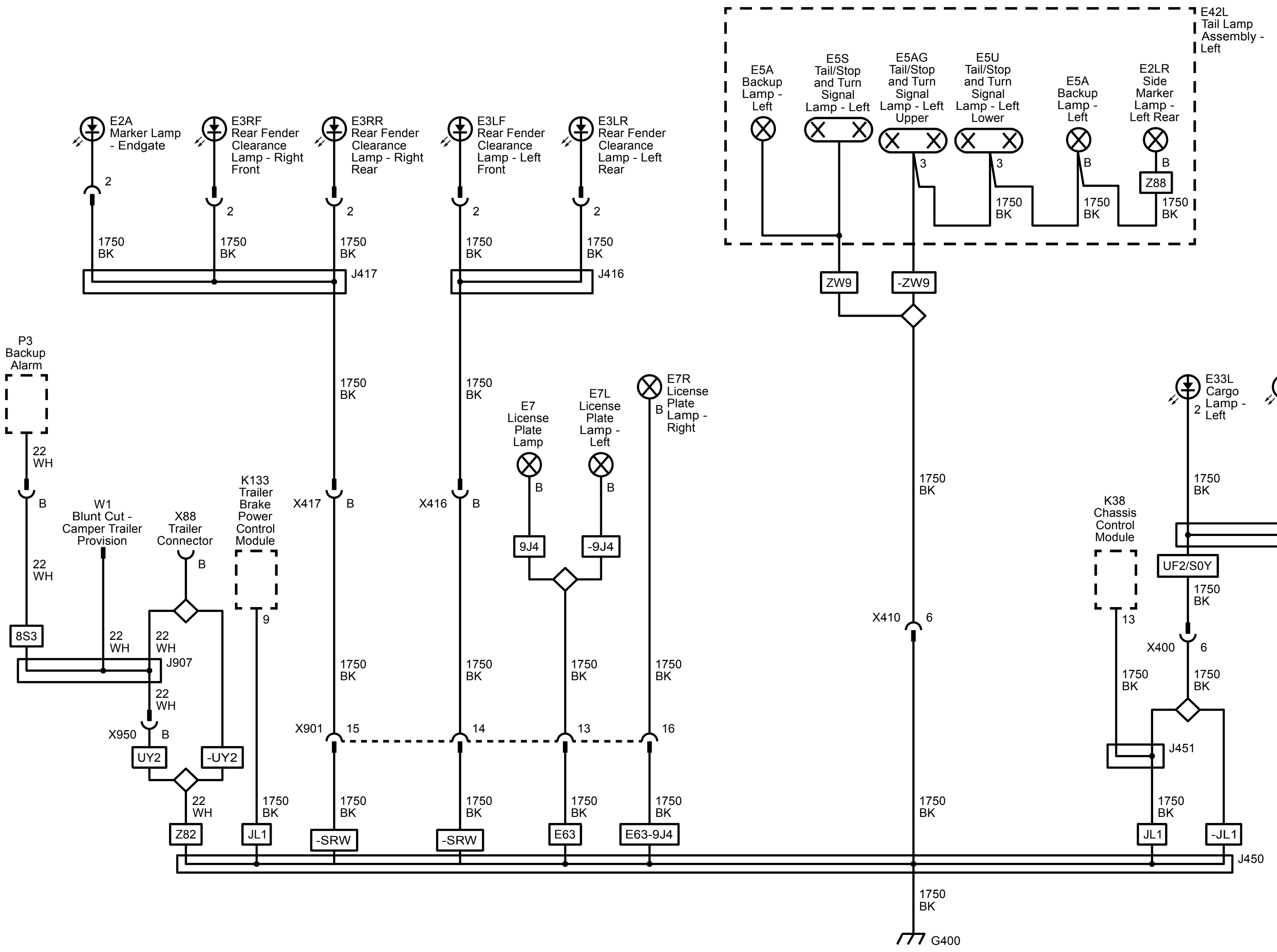


M73B Seat Blower Motor - Passenger Back
E14C Seat Heating Element - Passenger Back
M73D Seat Blower Motor - Passenger Cushion
E14D Seat Heating Element - Passenger Cushion
K29 Seat Heating Control Module
S64P Seat Adjuster Switch - Passenger
X80E Accessory Power Receptacle - Center Seat
X80D Accessory Power Receptacle - Center Console Compartment
A9B Outside Rearview Mirror - Passenger
E17P Outside Rearview Mirror Glass - Passenger
E4Z Turn Signal Repeater Lamp - Right
A23P Door Latch Assembly - Passenger
S79P Window Switch - Passenger
E63P Flood Lamp - Passenger Door Handle
S13P Door Lock Switch - Passenger
A23RR Door Latch Assembly - Right Rear
S79RR Window Switch - Right Rear
3
2
3
2
X1 8
X1 5
C
C
X2 A
X3 2
3
X1 1
2
1 (-A31)
5 (A31)
1250 BK
J328
KQV
-KQV
X322 3
KQV
KA1
J323
KA1/KQV
-KA1/KQV
X320 11
X314 16
8
AG1/B3F
J362
A95/AN3
AZ3/B3F
AE7
X610 11
5
X605 15
17
X606 7
DL3/DL8/DPN/DQS
A31
A31
-A31
J605
J615
3
5
J815
X600 2
X800 2
J366
/
G312

## G325 (2500/3500)


A11 Radio
P17 Info Display Module
A26 HVAC Controls
K73 Telematics Communication Interface Control Module
A33 Media Disc Player
P22A Video Display - 2nd Row
K188 Human Machine Interface Control Module Bypass Module
K74 Human Machine Interface Control Module
X92 USB Receptacle
X82 Audio/ Video Input Adapter
X83 Auxiliary Audio Input
T3 Audio Amplifier
B87 Rearview Camera
X3 16 (-IOB)
X1 1 (IOB)
X2 10
X1 9
10
10
X1 7
X1 7 (U42)
8 (TG5)
X2 8
X1 5
X1 8
X1 4
X1 1
X1 4
X1 8
2550 BK
2550 BK/WH
U42
X305 2
X300 5
5
IOB
IOB
IOB
IOB
-IOB
J266
E29
-E29
J265
UE1
TG5/U42
U42
IO5/IO6+UVC
IO5/IO6
D07
D07
X4 50
47
45
48
49
46
X5 31
X4 44
X61A Junction Block - Instrument Panel
X900 7
X314 6
X138 29
X1 50
X207 1
-D07
UQA/UQG
UVC
J350
E29
D07-E29/UQA/UQG/UVC
UQA/UQG/UVC/(-D07)
G325

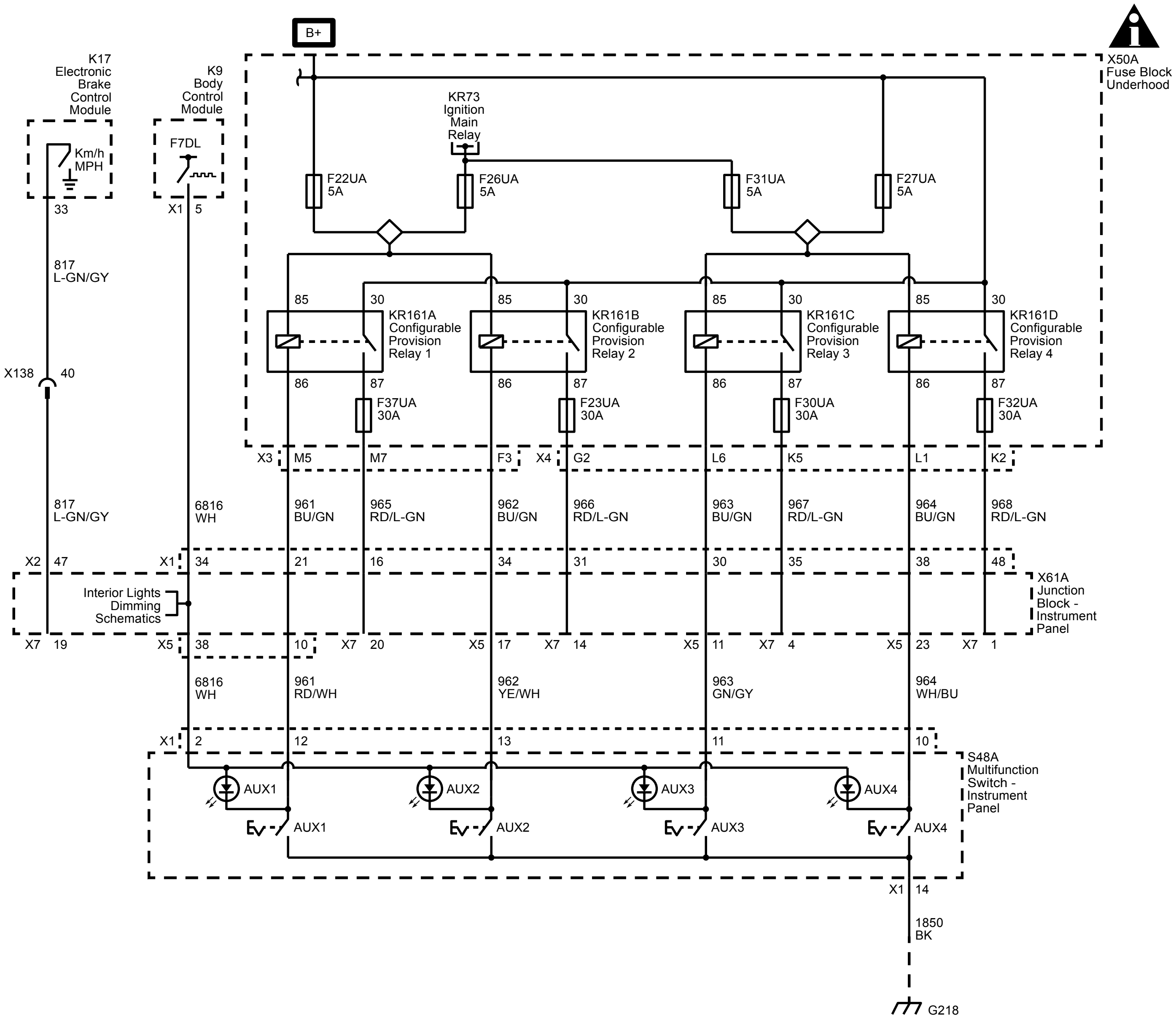
# G400 (2500/3500)

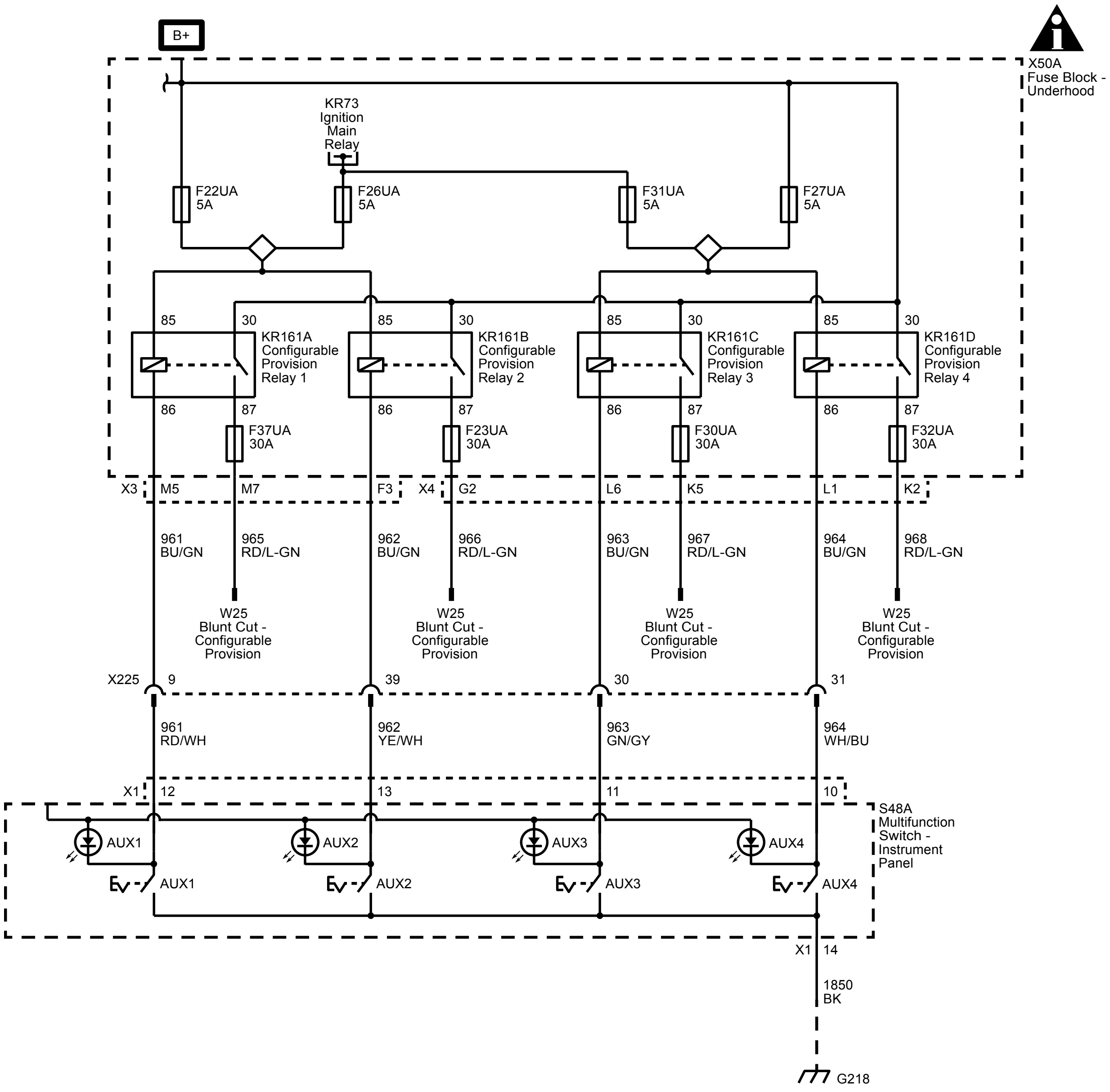


E42L Tail Lamp Assembly - Left
E5A Backup Lamp - Left
E5S Tail/Stop and Turn Signal Lamp - Left
E5AG Tail/Stop and Turn Signal Lamp - Left Upper
E5U Tail/Stop and Turn Signal Lamp - Left Lower
E5A Backup Lamp - Left
E2LR Side Marker Lamp - Left Rear
3
3
B
B
Z88
1750 BK
1750 BK
1750 BK
ZW9
-ZW9
E2A Marker Lamp - Endgate
E3RF Rear Fender Clearance Lamp - Right Front
E3RR Rear Fender Clearance Lamp - Right Rear
E3LF Rear Fender Clearance Lamp - Left Front
E3LR Rear Fender Clearance Lamp - Left Rear
2
2
2
2
2
1750 BK
1750 BK
1750 BK
1750 BK
1750 BK
J417
J416
P3 Backup Alarm
22 WH
B
22 WH
8S3
W1 Blunt Cut - Camper Trailer Provision
X88 Trailer Connector
B
K133 Trailer Brake Power Control Module
9
22 WH
22 WH
J907
22 WH
X950
B
UY2
-UY2
22 WH
Z82
1750 BK
JL1
X417
B
1750 BK
1750 BK
X416
B
1750 BK
1750 BK
E7 License Plate Lamp
E7L License Plate Lamp - Left
E7R License Plate Lamp - Right
B
B
B
9J4
-9J4
1750 BK
1750 BK
X901
15
14
13
16
1750 BK
1750 BK
1750 BK
1750 BK
-SRW
-SRW
E63
E63-9J4
1750 BK
X410
6
1750 BK
E33L Cargo Lamp - Left
E33R Cargo Lamp - Right
2
2
1750 BK
1750 BK
J499
UF2/S0Y
1750 BK
X400
6
K38 Chassis Control Module
13
1750 BK
1750 BK
J451
1750 BK
JL1
-JL1
J450
1750 BK
G400

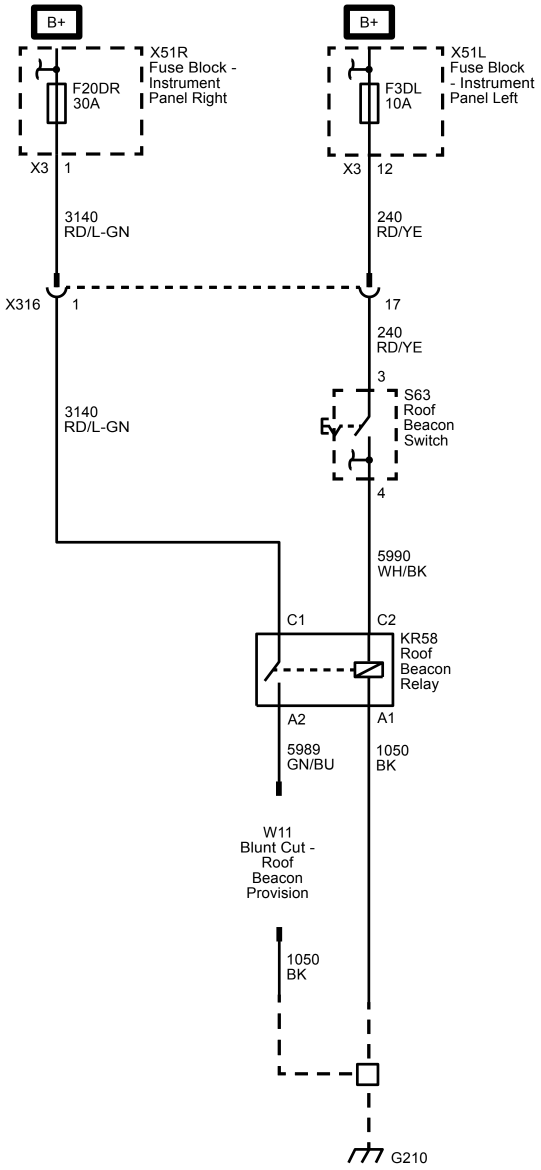
# Upfitter Provision Schematics

## Upfitter Provisions (except E29)

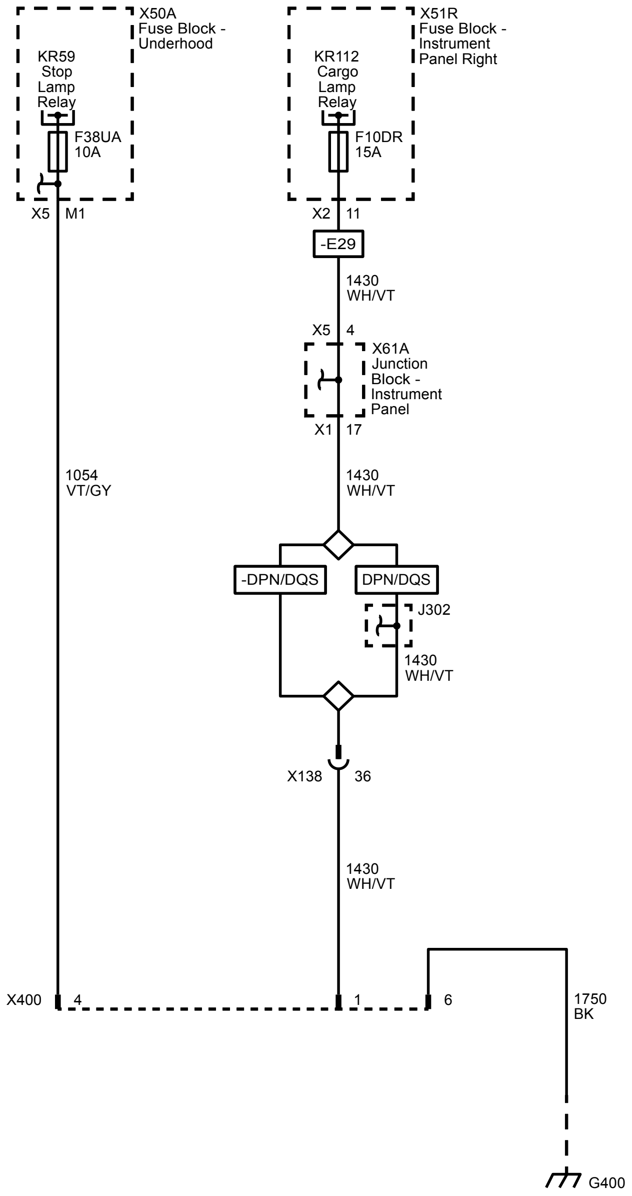

B+
K17
Electronic
Brake
Control
Module
Km/h
MPH
33
K9
Body
Control
Module
F7DL
X1 5
X50A
Fuse Block -
Underhood
KR73
Ignition
Main
Relay
F22UA
5A
F26UA
5A
F31UA
5A
F27UA
5A
85
30
KR161A
Configurable
Provision
Relay 1
86
87
F37UA
30A
85
30
KR161B
Configurable
Provision
Relay 2
86
87
F23UA
30A
85
30
KR161C
Configurable
Provision
Relay 3
86
87
F30UA
30A
85
30
KR161D
Configurable
Provision
Relay 4
86
87
F32UA
30A
X3
M5
M7
F3
X4
G2
L6
K5
L1
K2
817
L-GN/GY
X138
40
817
L-GN/GY
6816
WH
961
BU/GN
965
RD/L-GN
962
BU/GN
966
RD/L-GN
963
BU/GN
967
RD/L-GN
964
BU/GN
968
RD/L-GN
X2
47
X1
34
21
16
34
31
30
35
38
48
X61A
Junction
Block -
Instrument
Panel
Interior Lights
Dimming
Schematics
X7
19
X5
38
10
X7
20
X5
17
X7
14
X5
11
X7
4
X5
23
X7
1
6816
WH
961
RD/WH
962
YE/WH
963
GN/GY
964
WH/BU
X1
2
12
13
11
10
S48A
Multifunction
Switch -
Instrument
Panel
AUX1
AUX2
AUX3
AUX4
AUX1
AUX2
AUX3
AUX4
X1
14
1850
BK
G218


B+
X50A
Fuse Block -
Underhood
KR73
Ignition
Main
Relay
F22UA
5A
F26UA
5A
F31UA
5A
F27UA
5A
85
30
KR161A
Configurable
Provision
Relay 1
86
87
F37UA
30A
85
30
KR161B
Configurable
Provision
Relay 2
86
87
F23UA
30A
85
30
KR161C
Configurable
Provision
Relay 3
86
87
F30UA
30A
85
30
KR161D
Configurable
Provision
Relay 4
86
87
F32UA
30A
X3
M5
M7
F3
X4
G2
L6
K5
L1
K2
961
BU/GN
965
RD/L-GN
962
BU/GN
966
RD/L-GN
963
BU/GN
967
RD/L-GN
964
BU/GN
968
RD/L-GN
W25
Blunt Cut -
Configurable
Provision
W25
Blunt Cut -
Configurable
Provision
W25
Blunt Cut -
Configurable
Provision
W25
Blunt Cut -
Configurable
Provision
X225
9
39
30
31
961
RD/WH
962
YE/WH
963
GN/GY
964
WH/BU
X1
12
13
11
10
S48A
Multifunction
Switch -
Instrument
Panel
AUX1
AUX2
AUX3
AUX4
AUX1
AUX2
AUX3
AUX4
X1
14
1850
BK
G218

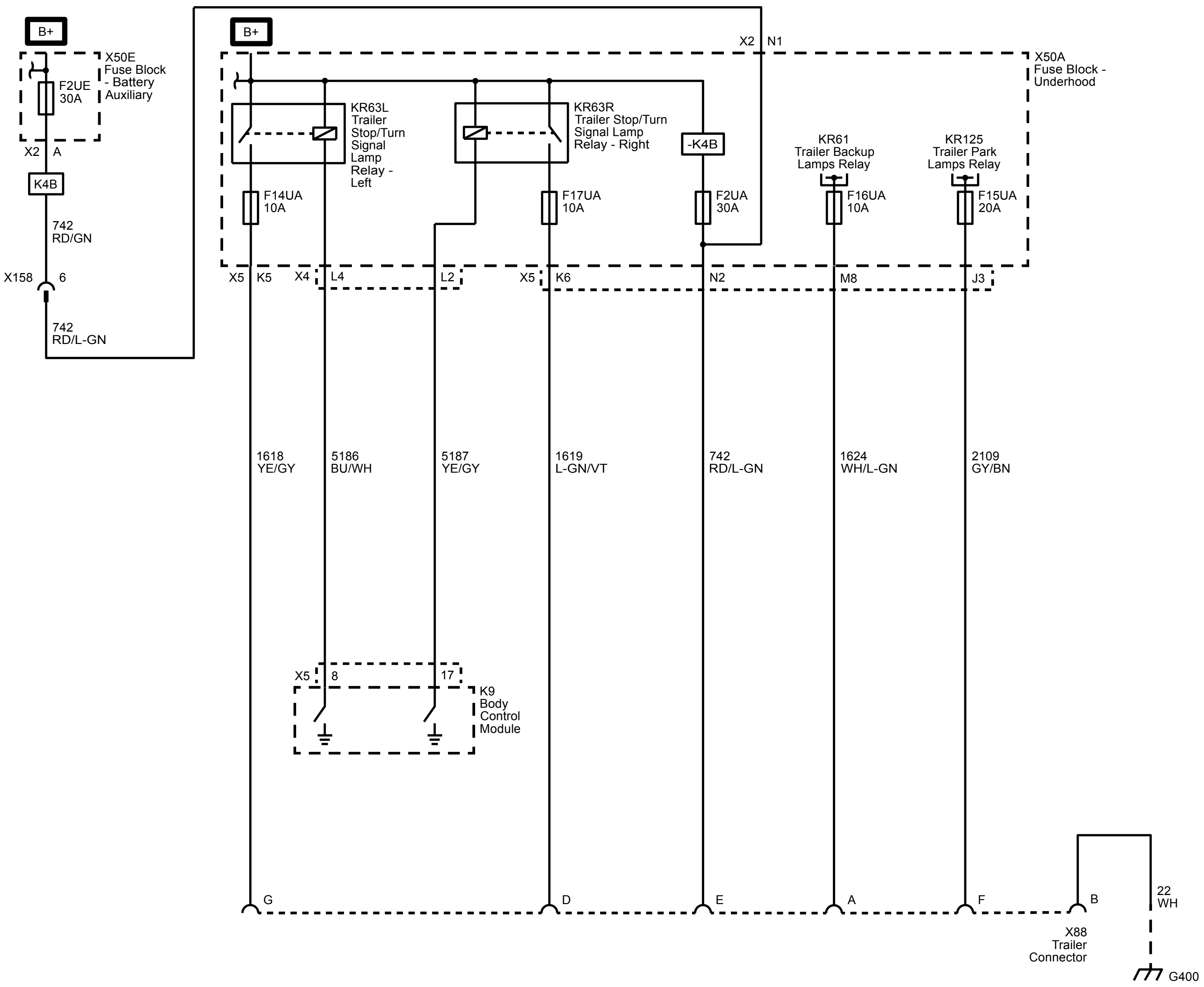
# Roof Beacon Provisions (TRW)


B+
X51R
Fuse Block - Instrument Panel Right
F20DR
30A
X3
1
3140
RD/L-GN
B+
X51L
Fuse Block - Instrument Panel Left
F3DL
10A
X3
12
240
RD/YE
X316
1
17
240
RD/YE
3140
RD/L-GN
3
S63
Roof Beacon Switch
4
5990
WH/BK
C1
C2
KR58
Roof Beacon Relay
A2
A1
5989
GN/BU
1050
BK
W11
Blunt Cut - Roof Beacon Provision
1050
BK
G210

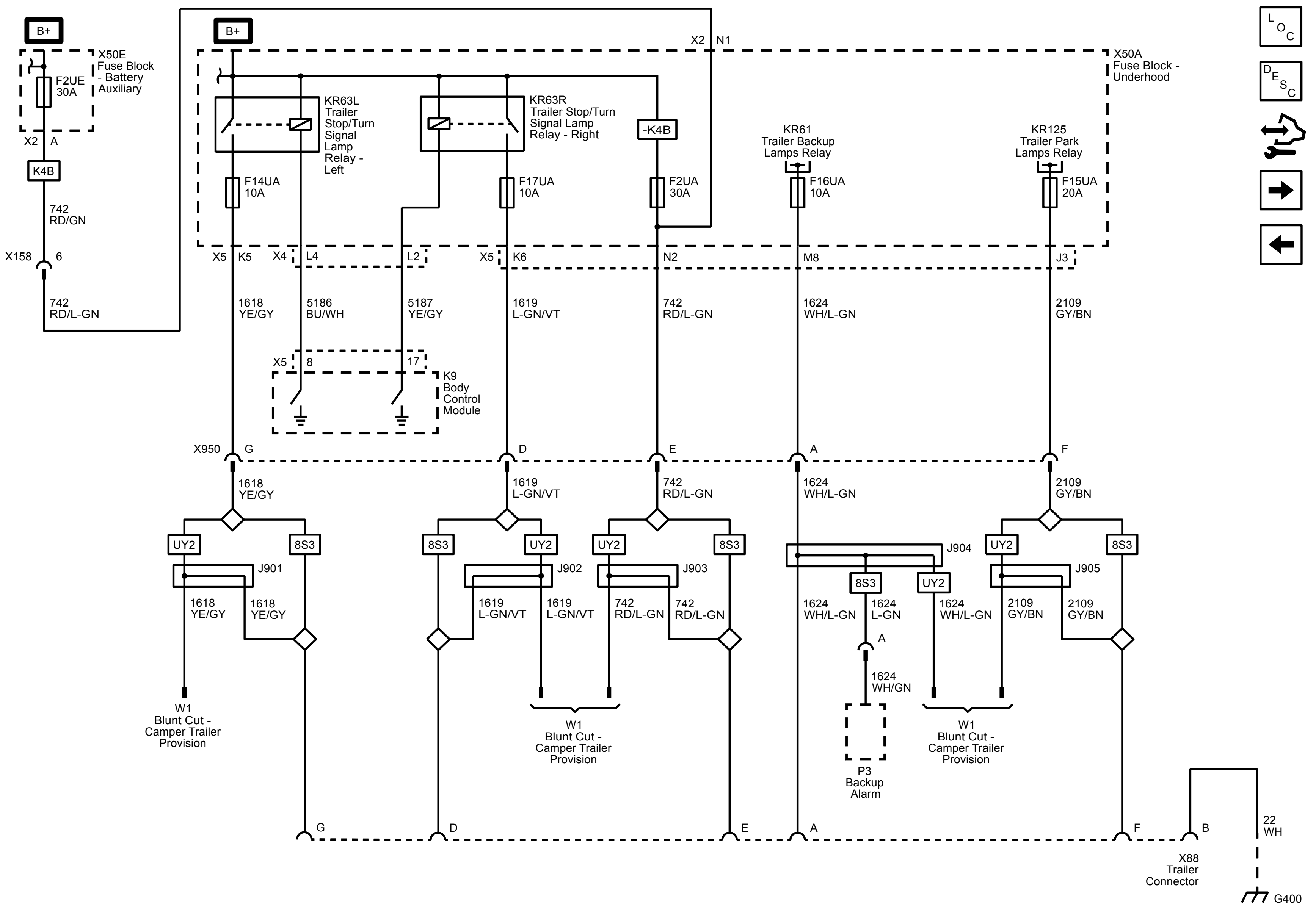
## Lighting Provisions - Rear of Frame

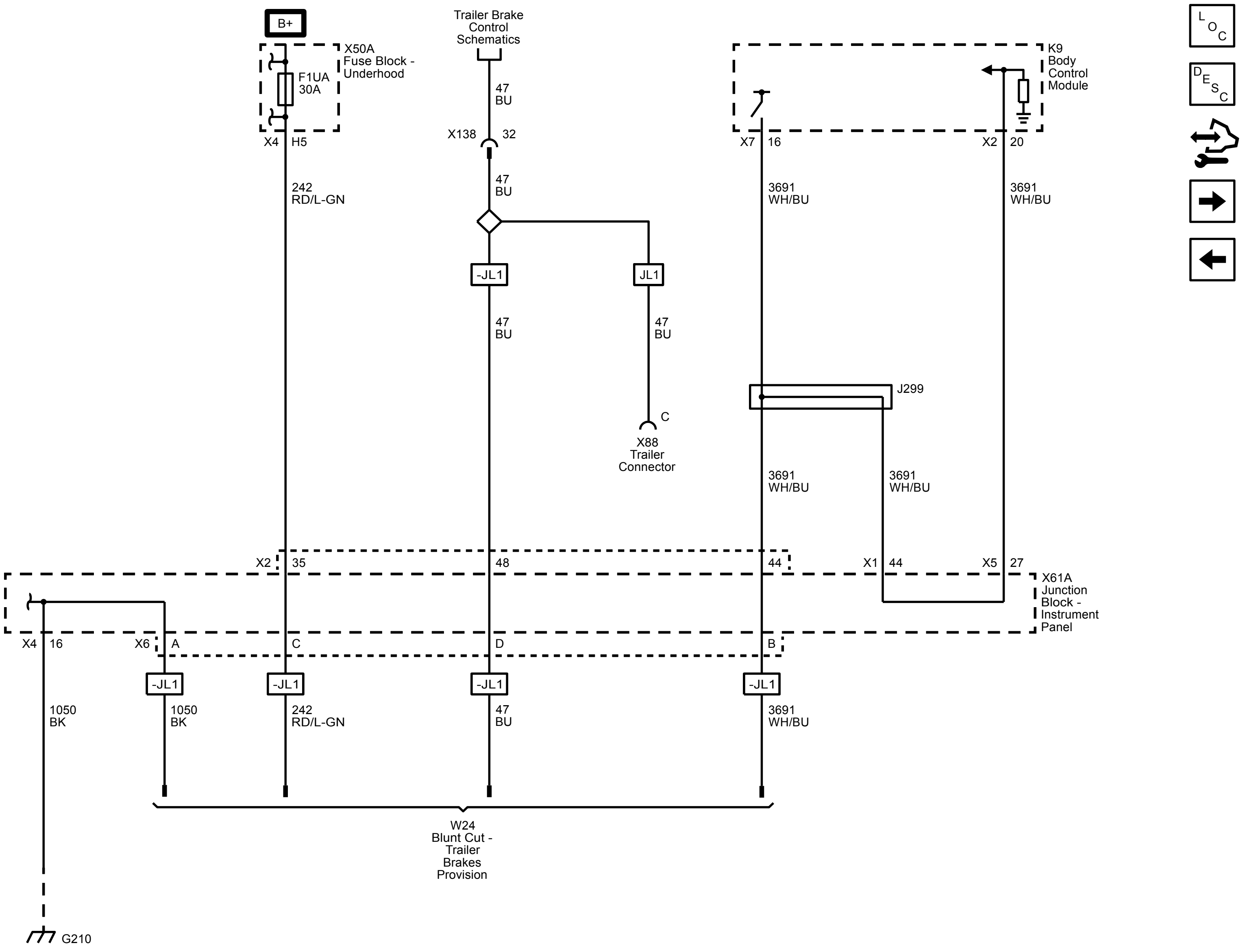

X50A
Fuse Block - Underhood
KR59 Stop Lamp Relay
F38UA 10A
X5
M1
1054 VT/GY
X51R
Fuse Block - Instrument Panel Right
KR112 Cargo Lamp Relay
F10DR 15A
X2
11
-E29
1430 WH/VT
X5
4
X61A
Junction Block - Instrument Panel
X1
17
1430 WH/VT
-DPN/DQS
DPN/DQS
J302
1430 WH/VT
X138
36
1430 WH/VT
X400
4
1
6
1750 BK
G400

## Trailer Connector Pins: A, B, D, E, F, G (Z82 without 8S3 or UY2)

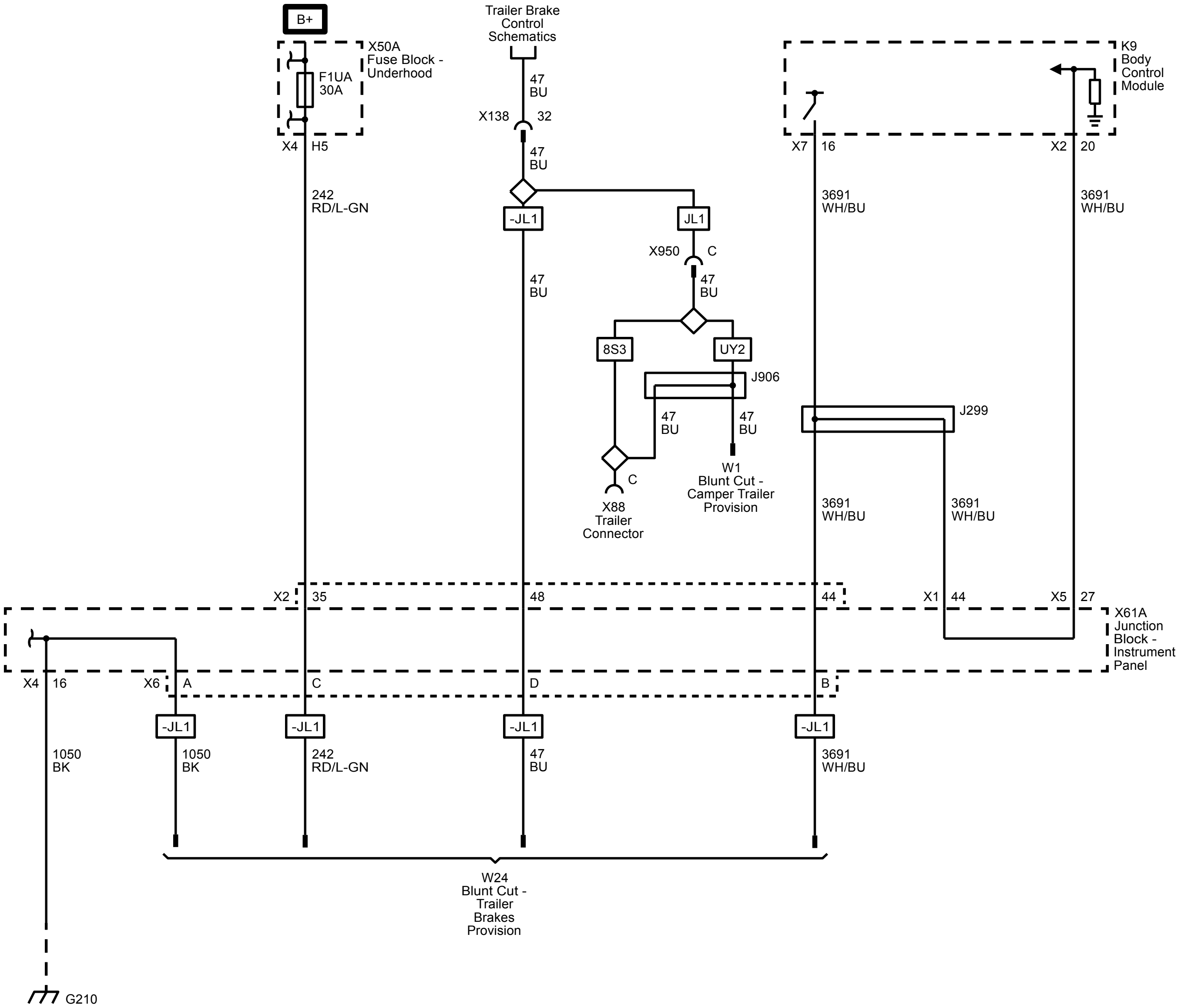

B+
X50E
Fuse Block
- Battery
Auxiliary
F2UE
30A
X2
A
K4B
742
RD/GN
X158
6
742
RD/L-GN
B+
X2
N1
X50A
Fuse Block -
Underhood
KR63L
Trailer
Stop/Turn
Signal
Lamp
Relay -
Left
KR63R
Trailer Stop/Turn
Signal Lamp
Relay - Right
-K4B
KR61
Trailer Backup
Lamps Relay
KR125
Trailer Park
Lamps Relay
F14UA
10A
F17UA
10A
F2UA
30A
F16UA
10A
F15UA
20A
X5
K5
X4
L4
L2
X5
K6
N2
M8
J3
1618
YE/GY
5186
BU/WH
5187
YE/GY
1619
L-GN/VT
742
RD/L-GN
1624
WH/L-GN
2109
GY/BN
X5
8
17
K9
Body
Control
Module
G
D
E
A
F
B
22
WH
X88
Trailer
Connector
G400

## Trailer Connector Pins: A, B, D, E, F, G (Z82 with 8S3 or UY2)

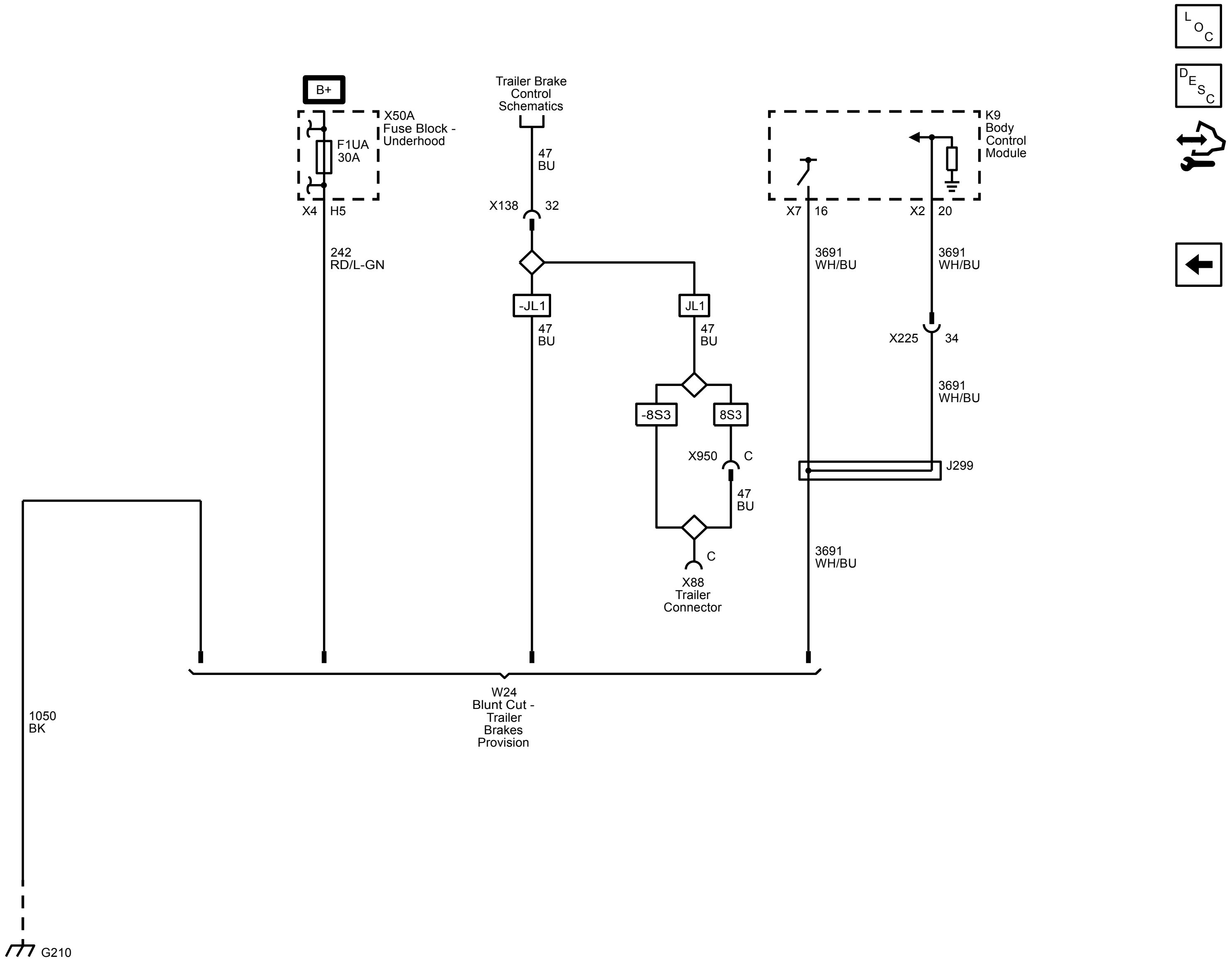

B+
X50E Fuse Block - Battery Auxiliary
F2UE 30A
X2 A
K4B
742 RD/GN
X158 6
742 RD/L-GN
B+
X2 N1
X50A Fuse Block - Underhood
KR63L Trailer Stop/Turn Signal Lamp Relay - Left
KR63R Trailer Stop/Turn Signal Lamp Relay - Right
-K4B
KR61 Trailer Backup Lamps Relay
KR125 Trailer Park Lamps Relay
F14UA 10A
F17UA 10A
F2UA 30A
F16UA 10A
F15UA 20A
X5 K5
X4 L4
L2
X5 K6
N2
M8
J3
1618 YE/GY
5186 BU/WH
5187 YE/GY
1619 L-GN/VT
742 RD/L-GN
1624 WH/L-GN
2109 GY/BN
X5 8
17
K9 Body Control Module
X950 G
D
E
A
F
1618 YE/GY
1619 L-GN/VT
742 RD/L-GN
1624 WH/L-GN
2109 GY/BN
UY2
8S3
J901
8S3
UY2
J902
UY2
8S3
J903
J904
8S3
UY2
UY2
8S3
J905
1618 YE/GY
1618 YE/GY
1619 L-GN/VT
1619 L-GN/VT
742 RD/L-GN
742 RD/L-GN
1624 WH/L-GN
1624 L-GN
1624 WH/L-GN
2109 GY/BN
2109 GY/BN
A
1624 WH/GN
W1 Blunt Cut - Camper Trailer Provision
W1 Blunt Cut - Camper Trailer Provision
P3 Backup Alarm
W1 Blunt Cut - Camper Trailer Provision
G
D
E
A
F
B
22 WH
X88 Trailer Connector
G400
LOC
DESC


B+
X50A
Fuse Block -
Underhood
F1UA
30A
X4 H5
242
RD/L-GN
Trailer Brake
Control
Schematics
47
BU
X138 32
-JL1
JL1
C
X88
Trailer
Connector
K9
Body
Control
Module
X7 16
X2 20
3691
WH/BU
J299
X2 35
48
44
X1 44
X5 27
X61A
Junction
Block -
Instrument
Panel
X4 16
X6 A
C
D
B
1050
BK
W24
Blunt Cut -
Trailer
Brakes
Provision
G210
LOC
DESC

# Trailer Connector Pin: C (Z82 with 8S3 or UY2 except E29)


B+
X50A
Fuse Block -
Underhood
F1UA
30A
X4
H5
242
RD/L-GN
Trailer Brake
Control
Schematics
47
BU
X138
32
47
BU
-JL1
JL1
X950
C
47
BU
8S3
UY2
J906
47
BU
47
BU
C
X88
Trailer
Connector
W1
Blunt Cut -
Camper Trailer
Provision
K9
Body
Control
Module
X7
16
X2
20
3691
WH/BU
3691
WH/BU
J299
3691
WH/BU
3691
WH/BU
X2
35
48
44
X1
44
X5
27
X61A
Junction
Block -
Instrument
Panel
X4
16
X6
A
C
D
B
-JL1
-JL1
-JL1
-JL1
1050
BK
1050
BK
242
RD/L-GN
47
BU
3691
WH/BU
W24
Blunt Cut -
Trailer
Brakes
Provision
G210

## Trailer Connector Pin: C (Z82 with E29)


B+
X50A
Fuse Block - Underhood
F1UA
30A
X4
H5
242
RD/L-GN
Trailer Brake Control Schematics
47
BU
X138
32
-JL1
JL1
47
BU
47
BU
-8S3
8S3
X950
C
47
BU
C
X88
Trailer Connector
K9
Body Control Module
X7
16
X2
20
3691
WH/BU
3691
WH/BU
X225
34
3691
WH/BU
J299
3691
WH/BU
1050
BK
G210
W24
Blunt Cut - Trailer Brakes Provision
L O C
D E S C

## Master Electrical Component List

| Code | Name | Option | Location | Locator View | Connector End View |
|---|---|---|---|---|---|
| A3L | Sunshade - Left | DH6 | In the passenger compartment, at the front of the headliner | — | — |
| A3R | Sunshade - Right | DH6 | In the passenger compartment, at the front of the headliner | — | — |
| A4 | Hybrid/EV Battery Pack | HP5 | Under the center console | *Front Center of the Passenger Compartment Components (HP5)* | *A4 Hybrid/EV Battery Pack* |
| A6C | Fuel Pump and Level Sensor Assembly - Primary | 2500 or 3500 | Under the vehicle, mounted in the front fuel tank | — | *A6C Fuel Pump and Level Sensor Assembly - Primary* |
| A6D | Fuel Pump and Level Sensor Assembly - Secondary | N2N | Under the vehicle, mounted in the rear fuel tank | — | *A6D Fuel Pump and Level Sensor Assembly - Secondary* |
| A7 | Fuel Pump and Level Sensor Assembly | 1500 | Under the vehicle, mounted in the fuel tank | *Rear Chassis Components (except Chassis Cab or L5P)* | *A7 Fuel Pump and Level Sensor Assembly* |
| A9A | Outside Rearview Mirror - Driver | — | Outside the vehicle, at the front of the driver door | — | — |
| A9B | Outside Rearview Mirror - Passenger | — | Outside the vehicle, at the front of the passenger door | — | — |
| A10 | Inside Rearview Mirror | DD8 or UE1 | In the passenger compartment, at the top center of the windshield | — | *A10 Inside Rearview Mirror* |
| A11 | Radio | — | In the passenger compartment, in the center of the Instrument Panel behind the Info Display Module | *Rear of Instrument Panel Components* | • *A11 Radio X1*<br>• *A11 Radio X2 (IOB)*<br>• *A11 Radio X2 (-IOB)*<br>• *A11 Radio X3* |
| A14D | Seat Lumbar Support Pump - Driver | GAJ or Y91 | In the passenger compartment, in the seat back | *Back of Driver Seat Components* | — |
| A14P | Seat Lumbar Support Pump - Passenger | GAJ or Y91 | In the passenger compartment, in the seat back | *Back of Passenger Seat Components* | — |
| A15 | Starter/Generator | HP5 | In the engine compartment, right of center, mounted to lower front of engine block at right | *Right Rear Side of Engine Components (L8B)* | — |
| A16 | Transfer Case Motor | NQF or NQH | Under the vehicle, mounted to the rear of the transmission | • *Left Side of Transmission Components (MW7)*<br>• *Left Side of Transmission Components (M5X)* | • *A16 Transfer Case Motor (L5P)*<br>• *A16 Transfer Case Motor (L96)*<br>• *A16 Transfer Case Motor (LV3)* |
| A22 | Radio Controls | — | In the passenger compartment, at the center of the Instrument Panel, part of the Info Display Module | — | *A22 Radio Controls* |
| A23D | Door Latch Assembly - Driver | — | Outside the vehicle, at the rear center of the driver door | *Driver Door Components* | *A23D Door Latch Assembly - Driver* |
| A23E | Door Latch Assembly - Endgate | A91 | In the rear of the vehicle, inside the lower middle of the endgate | — | — |

| | | | | | |
|---|---|---|---|---|---|
| A23LR | Door Latch Assembly - Left Rear | Extended Cab or Crew Cab | Outside the vehicle, at the rear center of the left rear door | *Left Rear Door Components* | *A23LR Door Latch Assembly - Left Rear* |
| A23P | Door Latch Assembly - Passenger | — | Outside the vehicle, at the rear center of the passenger door | *Passenger Door Components* | *A23P Door Latch Assembly - Passenger* |
| A23RR | Door Latch Assembly - Right Rear | Extended Cab or Crew Cab | Outside the vehicle, at the rear center of the right rear door | *Right Rear Door Components* | *A23RR Door Latch Assembly - Right Rear* |
| A26 | HVAC Controls | — | In the passenger compartment, at the middle of the instrument panel, part of the info display module | — | — |
| A28 | Hybrid/EV Battery Contactor Assembly | HP5 | part of the Hybrid/EV battery pack | *Hybrid/EV Battery Pack (2 of 3)* | • *A28 Hybrid/EV Battery Contactor Assembly X1*<br>• *A28 Hybrid/EV Battery Contactor Assembly X2*<br>• *A28 Hybrid/EV Battery Contactor Assembly X3*<br>• *A28 Hybrid/EV Battery Contactor Assembly X4*<br>• *A28 Hybrid/EV Battery Contactor Assembly X5*<br>• *A28 Hybrid/EV Battery Contactor Assembly X6*<br>• *A28 Hybrid/EV Battery Contactor Assembly X7*<br>• *A28 Hybrid/EV Battery Contactor Assembly X8* |
| A33 | Media Disc Player | TG5/U42/D07 | In the passenger compartment, at the center of the Instrument Panel, behind the Info Display Module | *Rear of Instrument Panel Components* | • *A33 Media Disc Player X1 (D07/U42)*<br>• *A33 Media Disc Player X1 (TG5)*<br>• *A33 Media Disc Player X2 (D07/U42)* |
| A39 | Reductant Fluid Reservoir Assembly | L5P | Under the vehicle, mounted to the outboard side of the frame, below the passenger side of the cab | — | — |
| B1 | A/C Refrigerant Pressure Sensor | C67 or CJ2 | In the engine compartment, near the left front corner of the engine | • *Right Rear of Engine Components (LV3)*<br>• *Right Side of Engine Components (L96)* | • *B1 A/C Refrigerant Pressure Sensor (L5P)*<br>• *B1 A/C Refrigerant Pressure Sensor (L96)*<br>• *B1 A/C Refrigerant Pressure Sensor (LV3)* |
| B5LF | Wheel Speed Sensor - Left Front | — | Outside the vehicle, part of the left front wheel hub assembly | *Front Chassis Components (1500)* | *B5LF Wheel Speed Sensor - Left Front* |
| B5LR | Wheel Speed Sensor - Left Rear | — | Outside the vehicle, mounted to the outboard end of the left axle tube | • *Chassis Components (2500/3500)*<br>• *Rear Chassis Components (except Chassis Cab or L5P)*<br>• *Front Axle Components* | *B5LR Wheel Speed Sensor - Left Rear* |
| B5RF | Wheel Speed Sensor - Right Front | — | Outside the vehicle, part of the right front wheel hub assembly | *Front Chassis Components (1500)* | *B5RF Wheel Speed Sensor - Right Front* |

| | | | | | |
|---|---|---|---|---|---|
| B5RR | Wheel Speed Sensor - Right Rear | — | Outside the vehicle, mounted to the outboard end of the right axle tube | - *Front Axle Components*<br>- *Chassis Components (2500/3500)*<br>- *Rear Chassis Components (except Chassis Cab or L5P)* | *B5RR Wheel Speed Sensor - Right Rear* |
| B7D | Air Temperature Sensor - Duct Left Lower | CJ2 | In the passenger compartment, behind the instrument panel, on the left side of the HVAC module | *Front of HVAC Assembly Components* | — |
| B7E | Air Temperature Sensor - Duct Right Lower | CJ2 | In the passenger compartment, behind the instrument panel, on the right side of the HVAC module | *Front of HVAC Assembly Components* | — |
| B7H | Air Temperature Sensor - Duct Left Upper | CJ2 | In the passenger compartment, behind the instrument panel, on the upper left side of the HVAC module | *Back of HVAC Assembly Components* | — |
| B7J | Air Temperature Sensor - Duct Right Upper | CJ2 | In the passenger compartment, behind the instrument panel, on the upper right side of the HVAC module | *Back of HVAC Assembly Components* | — |
| B9D | Ambient Air Temperature Sensor - Mirror | L5P | Outside the vehicle, at the bottom of the passenger outside rearview mirror | — | *B9D Ambient Air Temperature Sensor - Mirror* |
| B9 | Ambient Air Temperature Sensor | — | Outside the vehicle, behind the right side of the grill | - *Front of Vehicle (Chevrolet) Components*<br>- *Front of Vehicle (GMC) Components* | — |
| B10B | Ambient Light/Sunload Sensor | — | In the passenger compartment, at the top middle of the instrument panel | — | *B10B Ambient Light/Sunload Sensor* |
| B12A | Transmission Fluid Pressure Switch | MW7, MYC or MYD | Under the vehicle, inside the transmission assembly | — | — |
| B13 | Transmission Fluid Temperature Sensor | M5U, MW7, MYC or MYD | Under the vehicle, inside the transmission assembly | *Automatic Transmission Valve Body Components (M5U)* | — |
| B14A | Transmission Output Shaft Speed Sensor | — | Under the vehicle, mounted in the transmission tailshaft housing | - *Automatic Transmission Internal Components (MYC or MYD)*<br>- *Left Side of Transmission Components (MW7)*<br>- *Automatic Transmission Case Components (M5U)* | *B14A Transmission Output Shaft Speed Sensor (LV1+(C67/C42))* |
| B14B | Transmission Turbine Speed Sensor | MW7 | Under the vehicle, inside the transmission assembly | *Left Side of Transmission Components (MW7)* | *B14B Transmission Turbine Speed Sensor (L5P)* |
| B14C | Transmission Input Shaft Speed Sensor | M5U, MYC or MYD | Under the vehicle, inside the transmission assembly | *Automatic Transmission Case Components (M5U)* | — |
| B14D | Transmission Intermediate Shaft Speed Sensor | M5U | Under the vehicle, inside the transmission assembly | *Automatic Transmission Case Components (M5U)* | — |
| B15 | Transmission Internal Mode Switch | M5U, MW7, MYC or MYD | Under the vehicle, inside the transmission assembly | - *Automatic Transmission Case Components (M5U)*<br>- *Automatic Transmission Internal Components (MYC or MYD)* | — |

| | | | | | |
|---|---|---|---|---|---|
| B16 | Backup Lamp Switch | M2P, MQ7 or MXW | Under the vehicle, mounted to the transmission assembly | • *Manual Transmission Components (MQ7)*<br>• *Manual Transmission Components (MXW)* | • *B16 Backup Lamp Switch (L96+ZW9)*<br>• *B16 Backup Lamp Switch (LV1+(C42/C67))* |
| B18 | Battery Current Sensor | — | In the engine compartment, left rear of battery, on the negative battery cable | *Right Rear of Engine Compartment Components (HP5)* | *B18 Battery Current Sensor* |
| B19B | Brake Booster Vacuum Sensor | — | At the rear of the engine compartment, left of the brake fluid reservoir, on brake booster vacuum check valve | *Left Side of Engine Compartment Components (except L5P)* | *B19B Brake Booster Vacuum Sensor* |
| B20 | Brake Fluid Level Switch | — | In the engine compartment, mounted in the brake fluid reservoir | *Left Side of Engine Compartment Components (except L5P)* | *B20 Brake Fluid Level Switch* |
| B22 | Brake Pedal Position Sensor | — | In the passenger compartment, in the driver side footwell, under the instrument panel | — | *B22 Brake Pedal Position Sensor* |
| B23 | Camshaft Position Sensor | — | In the engine compartment, at the front of the engine, mounted the timing chain cover | *Right Side of Engine Components (L5P)* | • *B23 Camshaft Position Sensor (L5P)*<br>• *B23 Camshaft Position Sensor (L83/L86/L8B)* |
| B24 | Cellular Phone Microphone | IO5, IO6 or UE1 | In the passenger compartment, in the left side of the overhead console | — | *B24 Cellular Phone Microphone* |
| B25B | Clutch Pedal Position Sensor | M2P, MQ7 or MXW | In the passenger compartment, in the driver side footwell, under the instrument panel | — | *B25B Clutch Pedal Position Sensor* |
| B26 | Crankshaft Position Sensor | — | In the engine compartment, mounted in the side of the engine block | • *Right Side of Engine Components (L96)*<br>• *Right Rear of Engine Components (LV3)*<br>• *Right Side of Engine Components (L5P)* | • *B26 Crankshaft Position Sensor (L5P)*<br>• *B26 Crankshaft Position Sensor (L96/LC8)*<br>• *B26 Crankshaft Position Sensor (LV1/LV3)* |
| B30 | Hybrid/EV Battery Pack Current Sensor | HP5 | part of the Hybrid/EV battery pack | — | — |
| B33 | Engine Coolant Level Switch | L5P | In the engine compartment, in the engine coolant reservoir | — | *B33 Engine Coolant Level Switch* |
| B34 | Engine Coolant Temperature Sensor | L5P | In the engine compartment, top left front of the engine, right of the water outlet housing | • *Left Side of Engine Components (L96)*<br>• *Top of the Engine Components (L5P)*<br>• *Left Front of Engine Components (LV3)* | • *B34 Engine Coolant Temperature Sensor (L5P)*<br>• *B34 Engine Coolant Temperature Sensor (L96/LC8)*<br>• *B34 Engine Coolant Temperature Sensor (LV1/LV3)* |
| B34 | Engine Coolant Temperature Sensor | 1500 | In the engine compartment, top left front of water pump, left of coolant outlet hose | • *Left Side of Engine Components (L96)*<br>• *Top of the Engine Components (L5P)*<br>• *Left Front of Engine Components (LV3)* | • *B34 Engine Coolant Temperature Sensor (L5P)*<br>• *B34 Engine Coolant Temperature Sensor (L96/LC8)*<br>• *B34 Engine Coolant Temperature Sensor (LV1/LV3)* |

| | | | | | |
|---|---|---|---|---|---|
| B34 | Engine Coolant Temperature Sensor | L96/LC8 | In the engine compartment, left front side of engine cylinder head | • *Left Side of Engine Components (L96)*<br>• *Top of the Engine Components (L5P)*<br>• *Left Front of Engine Components (LV3)* | • *B34 Engine Coolant Temperature Sensor (L5P)*<br>• *B34 Engine Coolant Temperature Sensor (L96/LC8)*<br>• *B34 Engine Coolant Temperature Sensor (LV1/LV3)* |
| B35 | Engine Oil Level Switch | 1500 or L5P | In the engine compartment, bottom left of the engine oil pan | • *Left Side of Engine Components (L5P)*<br>• *Right Rear Side of Engine Components (L8B)*<br>• *Right Rear of Engine Components (LV3)* | • *B35 Engine Oil Level Switch (L5P)*<br>• *B35 Engine Oil Level Switch (LV1/LV3)* |
| B37B | Engine Oil Pressure Sensor | — | In the engine compartment, at the top rear of the engine block, between the cylinder heads | • *Left Front of Engine Components (LV3)*<br>• *Left Side of Engine Components (L5P)*<br>• *Left Side of Engine Components (L96)* | • *B37B Engine Oil Pressure Sensor (L5P)*<br>• *B37B Engine Oil Pressure Sensor (L96/LC8)*<br>• *B37B Engine Oil Pressure Sensor (LV1/LV3)* |
| B39 | A/C Evaporator Temperature Sensor | C67 or CJ2 | In the passenger compartment, behind the instrument panel, mounted in the HVAC housing | *Back of HVAC Assembly Components* | — |
| B46A | Fuel Level Sensor - Primary | 2500 or 3500 | Under the vehicle, inside the primary fuel tank, part of the fuel pump and level sensor assembly | — | — |
| B46B | Fuel Level Sensor - Secondary | N2N | Under the vehicle, inside the secondary fuel tank, part of the fuel pump and level sensor assembly | — | — |
| B46 | Fuel Level Sensor | 1500 | Under the vehicle, inside the fuel tank, part of the fuel pump and level sensor assembly | — | — |
| B47B | Fuel Rail Pressure Sensor | 1500 or L5P | In the engine compartment, at the top of the engine, mounted to the fuel rail | • *Top of Engine Components (L83/L86/L8B)*<br>• *Left Side of Engine Components (L5P)* | *B47B Fuel Rail Pressure Sensor (L5P)* |
| B47 | Fuel Pressure Sensor | 1500 | On the vehicle underbody, on the fuel line, near the transmission crossmember mount | *Front Chassis Components (1500)* | *B47 Fuel Pressure Sensor* |
| B52C | Heated Oxygen Sensor - Bank 1 Sensor 1 | except L5P | Under the vehicle, mounted in the bank 1 exhaust, upstream of the catalytic converter | *Exhaust Components (L96)* | • *B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (L96)*<br>• *B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (L96/LC8)*<br>• *B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LV1)*<br>• *B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LV3)* |
| B52D | Heated Oxygen Sensor - Bank 1 Sensor 2 | except L5P | Under the vehicle, mounted in the bank 1 exhaust, downstream of the catalytic converter | • *Exhaust Components (L96)*<br>• *Front Chassis Components (1500)* | *B52D Heated Oxygen Sensor - Bank 1 Sensor 2* |

| | | | | | |
|---|---|---|---|---|---|
| B52E | Heated Oxygen Sensor - Bank 2 Sensor 1 | except L5P | Under the vehicle, mounted in the bank 2 exhaust, upstream of the catalytic converter | *Exhaust Components (L96)* | • *B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (L96/LC8)*<br>• *B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (LV1/LV3)* |
| B52F | Heated Oxygen Sensor - Bank 2 Sensor 2 | except L5P | Under the vehicle, mounted in the bank 2 exhaust, downstream of the catalytic converter | • *Exhaust Components (L96)*<br>• *Chassis Components (2500/3500)* | *B52F Heated Oxygen Sensor - Bank 2 Sensor 2* |
| B55 | Hood Ajar Switch | BTV/PTO/UTJ/HP5 | Outside the vehicle, at the front center of the hood, part of the hood latch assembly | *Right Side of Engine Compartment Components* | • *B55 Hood Ajar Switch (L83/L86/LV3)*<br>• *B55 Hood Ajar Switch (HP5)*<br>• *B55 Hood Ajar Switch (L96/LC8/L5P)*<br>• *B55 Hood Ajar Switch (CK200+Z88)* |
| B59L | Front Impact Sensor - Left | 1500 | In the engine compartment, at the left side of the top of the radiator core support | — | *B59L Front Impact Sensor - Left* |
| B59R | Front Impact Sensor - Right | 1500 | In the engine compartment, at the right side of the top of the radiator core support | — | *B59R Front Impact Sensor - Right* |
| B59 | Front Impact Sensor | 2500/3500 | In the engine compartment, at the center of the top of the radiator core support | — | *B59 Front Impact Sensor* |
| B61P | Seat Belt Tension Sensor - Passenger | AL0 | In the passenger compartment, at the base of the B-pillar, part of the passenger seat belt retractor pretensioner | — | — |
| B62D | Seat Position Sensor - Driver | 1500 | In the passenger compartment, mounted to the outboard track of the driver seat | • *Front of Driver Seat Components*<br>• *Bottom of Driver Seat Components* | *B62D Seat Position Sensor - Driver* |
| B62P | Seat Position Sensor - Passenger | 1500 | In the passenger compartment, mounted to the outboard track of the passenger seat | • *Bottom of Passenger Seat Components (without GAJ or Y91)*<br>• *Bottom of Passenger Seat Components (GAJ or Y91)* | — |
| B63LF | Side Impact Sensor - Left Front | AY0 | At the left front of the passenger compartment, mounted inside the left front door, at the bottom | *Driver Door Components* | *B63LF Side Impact Sensor - Left Front* |
| B63LR | Side Impact Sensor - Left Rear | 4 Door with AY0 | At the left rear of the passenger compartment, mounted inside the left rear door, at the bottom | *Left Rear Door Components* | *B63LR Side Impact Sensor - Left Rear* |
| B63RF | Side Impact Sensor - Right Front | 4 Door with AY0 | At the right front of the passenger compartment, mounted inside the right front door, at the bottom | *Passenger Door Components* | *B63RF Side Impact Sensor - Right Front* |
| B63RR | Side Impact Sensor - Right Rear | AY0 | At the right rear of the passenger compartment, mounted inside the right rear door, at the bottom | *Right Rear Door Components* | *B63RR Side Impact Sensor - Right Rear* |
| B67A | Ultrasonic Intrusion Sensor 1 | UTU/UTV | In the passenger compartment, at the front of the roof, in the overhead console, part of the Content Theft Deterrent Sensor Module | — | — |
| B67B | Ultrasonic Intrusion Sensor 2 | UTU/UTV | In the passenger compartment, at the front of the roof, in the overhead console, part of the Content Theft Deterrent Sensor Module | — | — |
| B67C | Ultrasonic Intrusion Sensor 3 | UTU/UTV | In the passenger compartment, at the front of the roof, in the overhead console, part of the Content Theft Deterrent Sensor Module | — | — |

| | | | | | |
|---|---|---|---|---|---|
| B68A | Knock Sensor 1 | except L5P | In the engine compartment, on the rear side of engine block | *Left Front of Engine Components (LV3)* | *B68A Knock Sensor 1* |
| B68B | Knock Sensor 2 | except L5P | In the engine compartment, on the rear side of engine block | • *Right Side of Engine Components (L96)*<br>• *Right Rear of Engine Components (LV3)* | *B68B Knock Sensor 2* |
| B74 | Manifold Absolute Pressure Sensor | except L5P | In the engine compartment, left front of engine at throttle body | • *Left Side of Engine Components (L5P)*<br>• *Left Front of Engine Components (LV3)*<br>• *Left Side of Engine Components (L96)* | • *B74 Manifold Absolute Pressure Sensor (L96/LC8)*<br>• *B74 Manifold Absolute Pressure Sensor (LV3+(NQG/NQH))* |
| B74 | Manifold Absolute Pressure Sensor | L5P | In the engine compartment, left front top of engine in the intake manifold | • *Left Side of Engine Components (L5P)*<br>• *Left Front of Engine Components (LV3)*<br>• *Left Side of Engine Components (L96)* | • *B74 Manifold Absolute Pressure Sensor (L96/LC8)*<br>• *B74 Manifold Absolute Pressure Sensor (LV3+(NQG/NQH))* |
| B75B | Mass Air Flow/Intake Air Temperature Sensor | 2500 or 3500 | In the engine compartment, in air intake tube, near the air filter housing | *Left Side of Engine Components (L96)* | — |
| B75C | Multifunction Intake Air Sensor | — | In the engine compartment left front, in air intake tube, near the air filter housing | • *Right Rear Side of Engine Components (L8B)*<br>• *Right Rear of Engine Components (LV3)* | • *B75C Multifunction Intake Air Sensor (L5P)*<br>• *B75C Multifunction Intake Air Sensor (L96/LC8)*<br>• *B75C Multifunction Intake Air Sensor (LV1/LV3)* |
| B77LF | Radio Volume Compensator Interior Noise Microphone - Left Front | NKC | In the passenger compartment, at the left front of the headliner | — | *B77LF Radio Volume Compensator Interior Noise Microphone - Left Front* |
| B77R | Radio Volume Compensator Interior Noise Microphone - Rear | NKC | In the passenger compartment, at the rear center of the headliner | — | *B77R Radio Volume Compensator Interior Noise Microphone - Rear* |
| B77RF | Radio Volume Compensator Interior Noise Microphone - Right Front | NKC | In the passenger compartment, at the right front of the headliner | — | *B77RF Radio Volume Compensator Interior Noise Microphone - Right Front* |
| B78A | Front Object Sensor - Left Outer | UD5 | Outside the vehicle, mounted to the left side of the front bumper | • *Front of Vehicle (Chevrolet) Components*<br>• *Front of Vehicle (GMC) Components* | — |
| B78B | Front Object Sensor - Right Outer | UD5 | Outside the vehicle, mounted to the right side of the front bumper | • *Front of Vehicle (Chevrolet) Components*<br>• *Front of Vehicle (GMC) Components* | — |
| B78C | Front Object Sensor - Left Middle | UD5 | Outside the vehicle, mounted to the left middle of the front bumper | • *Front of Vehicle (Chevrolet) Components*<br>• *Front of Vehicle (GMC) Components* | — |

| | | | | | |
|---|---|---|---|---|---|
| B78D | Front Object Sensor - Right Middle | UD5 | Outside the vehicle, mounted to the right middle of the front bumper | • *Front of Vehicle (Chevrolet) Components*<br>• *Front of Vehicle (GMC) Components* | — |
| B78E | Rear Object Sensor - Left Middle | UD7 | Outside the vehicle, mounted to the left middle of the rear bumper | *Rear of Vehicle Components* | *B78E Rear Object Sensor - Left Middle* |
| B78F | Rear Object Sensor - Right Middle | UD7 | Outside the vehicle, mounted to the right middle of the rear bumper | *Rear of Vehicle Components* | *B78F Rear Object Sensor - Right Middle* |
| B78G | Rear Object Sensor - Left Outer | UD7 | Outside the vehicle, mounted to the left side of the rear bumper | *Rear of Vehicle Components* | *B78G Rear Object Sensor - Left Outer* |
| B78H | Rear Object Sensor - Right Outer | UD7 | Outside the vehicle, mounted to the right side of the rear bumper | *Rear of Vehicle Components* | *B78H Rear Object Sensor - Right Outer* |
| B80 | Park Brake Switch | — | In the passenger compartment, at the left side of the Driver Footwell | — | *B80 Park Brake Switch* |
| B81B | Park Position Switch | M5U, MW7, MYC or MYD | In the passenger compartment, on the steering column near the base of the shifter | — | — |
| B87 | Rearview Camera | UVC | Outside the vehicle, at the top middle of the tailgate, mounted in the tailgate handle | — | — |
| B88D | Seat Belt Switch - Driver | — | In the passenger compartment, at the inboard side of the driver seat, part of the seat belt buckle | — | *B88D Seat Belt Switch - Driver* |
| B88P | Seat Belt Switch - Passenger | 1500 | In the passenger compartment, at the inboard side of the passenger seat, part of the seat belt buckle | — | *B88P Seat Belt Switch - Passenger* |
| B99 | Steering Wheel Angle Sensor | — | In the passenger compartment, at the top of the steering column, behind the steering wheel air bag coil | — | — |
| B107 | Accelerator Pedal Position Sensor | — | In the passenger compartment, in the driver side footwell, under the intstrument panel | — | • *B107 Accelerator Pedal Position Sensor (E29)*<br>• *B107 Accelerator Pedal Position Sensor (-E29)* |
| B112 | Turbocharger Vane Position Sensor | L5P | In the engine compartment, on the top rear center of the engine | *Left Side of Engine Components (L5P)* | — |
| B115 | Vehicle Speed Sensor | NQF, NQG or NQH | Under the vehicle , at the rear of the transfer case | • *Left Side of Transmission Components (M5X)*<br>• *Manual Transmission Components (MQ7)*<br>• *Manual Transmission Components (MXW)* | • *B115 Vehicle Speed Sensor (L5P+MW7(-NQF/NQG))*<br>• *B115 Vehicle Speed Sensor (L5P+NQF+MW7)*<br>• *B115 Vehicle Speed Sensor (L5P+NQG+MW7)*<br>• *B115 Vehicle Speed Sensor (L96+ZW9)*<br>• *B115 Vehicle Speed Sensor (LC8/L96 with NQF)*<br>• *B115 Vehicle Speed Sensor (LC8/L96 with NQG)*<br>• *B115 Vehicle Speed Sensor (LV3)* |

| | | | | | |
|---|---|---|---|---|---|
| B118B | Windshield Washer Fluid Level Switch | — | Outside the vehicle, at the left front corner of the vehicle, below the headlight assembly, in the washer fluid reservoir | *Left Side of Engine Compartment Components (except L5P)* | *B118B Windshield Washer Fluid Level Switch* |
| B130A | Exhaust Gas Recirculation Temperature Sensor 1 | L5P | In the engine compartment, on the top right rear of the engine | *Right Rear Side of the Engine Components (L5P)* | *B130A Exhaust Gas Recirculation Temperature Sensor 1* |
| B130B | Exhaust Gas Recirculation Temperature Sensor 2 | L5P | In the engine compartment, on the top left middle of the engine | *Left Side of Engine Components (L5P)* | *B130B Exhaust Gas Recirculation Temperature Sensor 2* |
| B131A | Exhaust Temperature Sensor 1 | L5P | In the engine compartment, on the right rear of the engine, mounted on top of the exhaust pipe | *Right Rear Side of the Engine Components (L5P)* | *B131A Exhaust Temperature Sensor 1* |
| B131B | Exhaust Temperature Sensor 2 | L5P | Under the vehicle, on left side, behind the catalytic converter | — | *B131B Exhaust Temperature Sensor 2* |
| B131C | Exhaust Temperature Sensor 3 | L5P | Under the vehicle, attached to the exhaust pipe, at the middle of the diesel particulate filter | *Chassis Components (2500/3500)* | *B131C Exhaust Temperature Sensor 3* |
| B131D | Exhaust Temperature Sensor 4 | L5P | Under the vehicle, attached to the exhaust pipe, near the rear of the diesel particulate filter | *Chassis Components (2500/3500)* | *B131D Exhaust Temperature Sensor 4* |
| B136 | Exhaust Particulate Matter Sensor | L5P | On the underbody, mounted to the inboard side of the right frame rail, forward of the right rear shock | — | *B136 Exhaust Particulate Matter Sensor* |
| B137B | Power Steering Shaft Torque/Position Sensor | 1500 | Under the vehicle, part of the steering gear assembly | — | — |
| B150 | Fuel Tank Pressure Sensor | except Chassis Cab or L5P | Under the vehicle, at the top of the fuel tank | • *Chassis Components (Chassis Cab)*<br>• *Chassis Components (2500/3500)*<br>• *Rear Chassis Components (except Chassis Cab or L5P)* | *B150 Fuel Tank Pressure Sensor* |
| B150 | Fuel Tank Pressure Sensor | N2L or N2N | Under the vehicle, at the top of the fuel tank | • *Chassis Components (Chassis Cab)*<br>• *Chassis Components (2500/3500)*<br>• *Rear Chassis Components (except Chassis Cab or L5P)* | *B150 Fuel Tank Pressure Sensor* |
| B152LF | Suspension Position Sensor - Left Front | Z95 | Under the vehicle, at the left front corner of the frame | *Front Chassis Components (1500)* | *B152LF Suspension Position Sensor - Left Front* |
| B152LR | Suspension Position Sensor - Left Rear | Z95 | Under the vehicle, at the left rear corner of the frame | *Rear Chassis Components (except Chassis Cab or L5P)* | *B152LR Suspension Position Sensor - Left Rear* |
| B152RF | Suspension Position Sensor - Right Front | Z95 | Under the vehicle, at the right front corner of the frame | *Front Chassis Components (1500)* | *B152RF Suspension Position Sensor - Right Front* |
| B152RR | Suspension Position Sensor - Right Rear | Z95 | Under the vehicle, at the right rear corner of the frame | *Rear Chassis Components (except Chassis Cab or L5P)* | *B152RR Suspension Position Sensor - Right Rear* |
| B153D | Seat Belt Buckle - Driver | — | In the passenger compartment, at the inboard side of the drive seat | *Front of Driver Seat Components* | — |
| B153P | Seat Belt Buckle - Passenger | — | In the passenger compartment, at the inboard side of the passenger seat | *Front of Passenger Seat Components* | — |
| B154 | Diesel Particulate Filter Exhaust Differential Pressure Sensor | L5P | Under the vehicle, mounted to the frame, near the diesel particulate filter | *Chassis Components (2500/3500)* | *B154 Diesel Particulate Filter Exhaust Differential Pressure Sensor* |
| B155 | Adjustable Pedal Position Sensor | JF4 | In the passenger compartment, mounted to the accelerator pedal assembly | — | — |

| | | | | | |
|---|---|---|---|---|---|
| B160 | Windshield Temperature and Inside Moisture Sensor | HP5 | In the passenger compartment, front center, mounted to top of windshield | — | *B160 Windshield Temperature and Inside Moisture Sensor* |
| B165 | Content Theft Deterrent Sensor Module | UTU/UTV | In the passenger compartment, at the front of the roof, in the overhead console | — | — |
| B174W | Frontview Camera - Windshield | UFL or UHX | In the passenger compartment, at the top middle of the windshield | — | • *B174W Frontview Camera - Windshield (UFL)*<br>• *B174W Frontview Camera - Windshield (UHX)* |
| B192 | Throttle Inlet Absolute Pressure Sensor | L96 or LC8 | Right front of the engine compartment, on the air cleaner box | *Left Side of Engine Components (L96)* | — |
| B193A | Charge Air Cooler Inlet Temperature Sensor | L5P | In the engine compartment, mounted in the air inlet tube, near the air cleaner | *Left Side of Engine Components (L5P)* | *B193A Charge Air Cooler Inlet Temperature Sensor* |
| B193B | Charge Air Cooler Outlet Temperature Sensor | L5P | In the engine compartment, mounted in the air inlet tube, near the throttle body | — | *B193B Charge Air Cooler Outlet Temperature Sensor* |
| B195A | Nitrogen Oxides Sensor 1 | L5P | In the engine compartment, attached to the exhaust pipe, on the top left rear side of the engine | • *Left Side of Engine Compartment Components (L5P)*<br>• *Chassis Components (Chassis Cab)*<br>• *Left Side of Engine Components (L5P)* | *B195A Nitrogen Oxides Sensor 1 (L5P)* |
| B195B | Nitrogen Oxides Sensor 2 | L5P | Under the vehicle, attached to the exhaust pipe, at the middle of the diesel particulate filter | *Chassis Components (2500/3500)* | *B195B Nitrogen Oxides Sensor 2* |
| B198 | Fuel Composition Sensor | — | Under the vehicle, mounted to the left side of the frame | — | *B198 Fuel Composition Sensor* |
| B227 | Gear Position Sensor | NQH | Under the vehicle, mounted to the transfer case | *Left Side of Transmission Components (M5X)* | *B227 Gear Position Sensor* |
| B229 | Alternative Fuel Rail Pressure/Temperature Sensor | LC8 | In the engine compartment, on top of the engine, mounted to the left bank alternative fuel rail, facing towards the front of the vehicle. | — | — |
| B235 | Starter/Generator Coolant Temperature Sensor | HP5 | In the engine compartment, on the right front side | *Cooling Fans (HP5)* | *B235 Starter/Generator Coolant Temperature Sensor* |
| B257 | Alternative Fuel Pressure Sensor | LC8 | Under the CNG tank cover, part of the CNG Fuel Tank Assembly | — | — |
| B263 | Alternative Fuel Tank Temperature Sensor | LC8 | Under the CNG tank cover, part of the CNG Fuel Tank Assembly | — | — |
| B264 | CNG High Pressure Regulator Temperature Sensor | LC8 | Under the CNG tank cover, part of the CNG Fuel Tank Assembly | — | — |
| B280 | Automatic Transmission Accumulator Solenoid Valve | M5X | Under the vehicle, inside the transmission assembly | — | — |
| B302 | Power Steering Pressure Sensor | NV8 | In the passenger compartment, on the steering column near the base of the shifter | — | — |
| C1B | Battery - Auxiliary | K4B, K4D or L5P | In the engine compartment, at the left front corner, forward of the underhood fuse block | *Left Side of Engine Compartment Components (except L5P)* | — |
| C1 | Battery | — | In the engine compartment, at the right rear corner | *Right Side of Engine Compartment Components* | — |

| | | | | | |
|---|---|---|---|---|---|
| C4A | Hybrid/EV Battery Section 1 | HP5 | Under the center console, inside the Hybrid/EV Battery Pack | — | • *C4A Hybrid/EV Battery Section 1 (HP5 (NEGATIVE))*<br>• *C4A Hybrid/EV Battery Section 1 (HP5 (POSITIVE))* |
| C4B | Hybrid/EV Battery Section 2 | HP5 | Under the center console, inside the Hybrid/EV Battery Pack | — | • *C4B Hybrid/EV Battery Section 2 (HP5 (NEGATIVE))*<br>• *C4B Hybrid/EV Battery Section 2 (HP5 (POSITIVE))* |
| C11 | Hybrid/EV Battery High Voltage Noise Filter | HP5 | Under the center console, inside the Hybrid/EV Battery Pack | — | — |
| E1L | Accent Lamp - Overhead Console | — | In the passenger compartment, at the front of the headliner, in the overhead console | — | *E1L Accent Lamp - Overhead Console* |
| E2A | Marker Lamp - Endgate | Dual Rear Wheel except ZW9 | Outside the vehicle, at the bottom middle of the tailgate | — | *E2A Marker Lamp - Endgate* |
| E2LF | Side Marker Lamp - Left Front | Z88 | Outside the vehicle, at the left front corner, mounted in the left headlight assembly | — | — |
| E2LM | Side Marker Lamp - Left Middle | DPN or DQS | Outside the vehicle, part of the outside rearview mirror | — | — |
| E2LR | Side Marker Lamp - Left Rear | Z88 | Outside the vehicle, at the left rear corner, mounted in the left tail light assembly | — | — |
| E2RF | Side Marker Lamp - Right Front | Z88 | Outside the vehicle, at the right front corner, mounted in the right headlight assembly | — | — |
| E2RM | Side Marker Lamp - Right Middle | DPN or DQS | Outside the vehicle, part of the outside rearview mirror | — | — |
| E2RR | Side Marker Lamp - Right Rear | Z88 | Outside the vehicle, at the right rear corner, mounted in the right tail light assembly | — | — |
| E3A | Roof Clearance Lamp - Left Front Outer | U01 | Outside the vehicle, at the front of the roof | — | *E3A Roof Clearance Lamp - Left Front Outer* |
| E3C | Roof Clearance Lamp - Front Middle | U01 | Outside the vehicle, at the front of the roof | — | *E3C Roof Clearance Lamp - Front Middle* |
| E3E | Roof Clearance Lamp - Right Front Outer | U01 | Outside the vehicle, at the front of the roof | — | *E3E Roof Clearance Lamp - Right Front Outer* |
| E3LF | Rear Fender Clearance Lamp - Left Front | Dual Rear Wheel except ZW9 | Outside the vehicle, on the rear wheel fender flare | — | *E3LF Rear Fender Clearance Lamp - Left Front* |
| E3LR | Rear Fender Clearance Lamp - Left Rear | Dual Rear Wheel except ZW9 | Outside the vehicle, on the rear wheel fender flare | — | *E3LR Rear Fender Clearance Lamp - Left Rear* |
| E3RF | Rear Fender Clearance Lamp - Right Front | Dual Rear Wheel except ZW9 | Outside the vehicle, on the rear wheel fender flare | — | *E3RF Rear Fender Clearance Lamp - Right Front* |
| E3RR | Rear Fender Clearance Lamp - Right Rear | Dual Rear Wheel except ZW9 | Outside the vehicle, on the rear wheel fender flare | — | *E3RR Rear Fender Clearance Lamp - Right Rear* |
| E4AC | Park/Daytime Running Lamp - Left | Z88 with SLT | At the left front of the vehicle, in the headlamp assembly | *Front of Vehicle (GMC) Components* | — |
| E4AD | Park/Daytime Running Lamp - Right | Z88 with SLT | At the right front of the vehicle, in the headlamp assembly | *Front of Vehicle (GMC) Components* | — |

| | | | | | |
|---|---|---|---|---|---|
| E4E | Headlamp - Left High Beam | X88 | Outside the vehicle, at the left front corner, mounted in the left headlight assembly | *Front of Vehicle (Chevrolet) Components* | — |
| E4F | Headlamp - Right High Beam | X88 | Outside the vehicle, at the right front corner, mounted in the right headlight assembly | *Front of Vehicle (Chevrolet) Components* | — |
| E4G | Headlamp - Left Low Beam | — | Outside the vehicle, at the left front corner, mounted in the left headlight assembly | • *Front of Vehicle (Chevrolet) Components*<br>• *Front of Vehicle (GMC) Components* | — |
| E4H | Headlamp - Right Low Beam | — | Outside the vehicle, at the right front corner, mounted in the right headlight assembly | • *Front of Vehicle (GMC) Components*<br>• *Front of Vehicle (Chevrolet) Components* | — |
| E4J | Park Lamp - Left Front | Z88 with SLT | Outside the vehicle, at the left front corner, mounted in the left headlight assembly | *Front of Vehicle (GMC) Components* | — |
| E4K | Park Lamp - Right Front | Z88 with SLT | Outside the vehicle, at the right front corner, mounted in the right headlight assembly | *Front of Vehicle (GMC) Components* | — |
| E4LF | Turn Signal Lamp - Left Front | — | At the front of the vehicle, part of the left headlamp assembly | — | — |
| E4N | Park/Turn Signal Lamp - Left | Z88 | Outside the vehicle, at the left front corner, mounted in the left headlight assembly | *Front of Vehicle (GMC) Components* | — |
| E4P | Park/Turn Signal Lamp - Right | Z88 | Outside the vehicle, at the right front corner, mounted in the right headlight assembly | *Front of Vehicle (GMC) Components* | — |
| E4Q | Park/Turn Signal Lamp - Left Lower | X88 | Outside the vehicle, at the left front corner, mounted in the left headlight assembly | *Front of Vehicle (Chevrolet) Components* | — |
| E4R | Park/Turn Signal Lamp - Right Lower | X88 | Outside the vehicle, at the right front corner, mounted in the right headlight assembly | *Front of Vehicle (Chevrolet) Components* | — |
| E4RF | Turn Signal Lamp - Right Front | — | At the front of the vehicle, part of the right headlamp assembly | — | — |
| E4S | Park/Turn Signal Lamp - Left Upper | X88 | Outside the vehicle, at the left front corner, mounted in the left headlight assembly | *Front of Vehicle (Chevrolet) Components* | — |
| E4T | Park/Turn Signal Lamp - Right Upper | X88 | Outside the vehicle, at the right front corner, mounted in the right headlight assembly | *Front of Vehicle (Chevrolet) Components* | — |
| E4Y | Turn Signal Repeater Lamp - Left | DL3, DL8, DPN or DQS | Outside the vehicle, at the front of the driver door, on the outside rearview mirror | — | — |
| E4Z | Turn Signal Repeater Lamp - Right | DL3, DL8, DPN or DQS | Outside the vehicle, at the front of the passenger door, on the outside rearview mirror | — | — |
| E5A | Backup Lamp - Left | — | Outside the vehicle, at the left rear corner, mounted in the left tail light assembly | *Rear of Vehicle Components* | — |
| E5AG | Tail/Stop and Turn Signal Lamp - Left Upper | without ZW9 | Outside the vehicle, at the left rear corner, mounted in the left tail light assembly | *Rear of Vehicle Components* | — |
| E5AH | Tail/Stop and Turn Signal Lamp - Right Upper | without ZW9 | Outside the vehicle, at the right rear corner, mounted in the right tail light assembly | *Rear of Vehicle Components* | — |
| E5B | Backup Lamp - Right | — | Outside the vehicle, at the right rear corner, mounted in the right tail light assembly | *Rear of Vehicle Components* | — |

| | | | | | |
|---|---|---|---|---|---|
| E5S | Tail/Stop and Turn Signal Lamp - Left | ZW9 | At the rear of the vehicle, mounted to the rear of the frame | — | — |
| E5T | Tail/Stop and Turn Signal Lamp - Right | ZW9 | At the rear of the vehicle, mounted to the rear of the frame | — | — |
| E5U | Tail/Stop and Turn Signal Lamp - Left Lower | without ZW9 | Outside the vehicle, at the left rear corner, mounted in the left tail light assembly | *Rear of Vehicle Components* | — |
| E5V | Tail/Stop and Turn Signal Lamp - Right Lower | without ZW9 | Outside the vehicle, at the right rear corner, mounted in the right tail light assembly | *Rear of Vehicle Components* | — |
| E6 | Center High Mounted Stop Lamp | — | Outside the vehicle, at the top center of the rear window | *Rear of Vehicle Components* | — |
| E7L | License Plate Lamp - Left | E63 without 9J4 | Outside the vehicle, mounted in the middle of the rear bumper | *Rear of Vehicle Components* | *E7L License Plate Lamp - Left* |
| E7R | License Plate Lamp - Right | E63 without 9J4 | Outside the vehicle, mounted in the middle of the rear bumper | *Rear of Vehicle Components* | *E7R License Plate Lamp - Right* |
| E7 | License Plate Lamp | E63 with 9J4 | At the rear of the vehicle, mounted to the rear of the frame | — | — |
| E8YD | Outside Rearview Mirror Courtesy Lamp - Driver | DL3 | Outside the vehicle, at the front of the driver door, part of the outside rearview mirror | — | — |
| E8YP | Outside Rearview Mirror Courtesy Lamp - Passenger | DL3 | Outside the vehicle, at the front of the passenger door, part of the outside rearview mirror | — | — |
| E12A | Glow Plug 1 | L5P | In the engine compartment, In the cylinder head at cylinder 1 | *Right Side of Engine Components (L5P)* | *E12A Glow Plug 1* |
| E12B | Glow Plug 2 | L5P | In the engine compartment, In the cylinder head at cylinder 2 | *Left Side of Engine Components (L5P)* | *E12B Glow Plug 2* |
| E12C | Glow Plug 3 | L5P | In the engine compartment, In the cylinder head at cylinder 3 | *Right Side of Engine Components (L5P)* | *E12C Glow Plug 3* |
| E12D | Glow Plug 4 | L5P | In the engine compartment, In the cylinder head at cylinder 4 | *Left Side of Engine Components (L5P)* | *E12D Glow Plug 4* |
| E12E | Glow Plug 5 | L5P | In the engine compartment, In the cylinder head at cylinder 5 | *Right Rear Side of the Engine Components (L5P)* | *E12E Glow Plug 5* |
| E12F | Glow Plug 6 | L5P | In the engine compartment, In the cylinder head at cylinder 6 | *Left Side of Engine Components (L5P)* | *E12F Glow Plug 6* |
| E12G | Glow Plug 7 | L5P | In the engine compartment, In the cylinder head at cylinder 7 | *Right Rear Side of the Engine Components (L5P)* | *E12G Glow Plug 7* |
| E12H | Glow Plug 8 | L5P | In the engine compartment, In the cylinder head at cylinder 8 | *Left Side of Engine Components (L5P)* | *E12H Glow Plug 8* |
| E13L | Headlamp - Left | — | At the front of the vehicle, part of the left headlamp assembly | — | — |
| E13LA | Headlamp Assembly - Left | — | Outside the vehicle, at the left front corner | — | — |
| E13R | Headlamp - Right | — | At the front of the vehicle, part of the right headlamp assembly | — | — |
| E13RA | Headlamp Assembly - Right | — | Outside the vehicle, at the right front corner | — | — |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| E14A | Seat Heating Element - Driver Back | KA1/KB6 | In the passenger compartment, in the driver seat back | *Front of Driver Seat Components* | *E14A Seat Heating Element - Driver Back* |
| E14B | Seat Heating Element - Driver Cushion | KA1/KB6 | In the passenger compartment, in the driver seat cushion | *Front of Driver Seat Components* | *E14B Seat Heating Element - Driver Cushion* |
| E14C | Seat Heating Element - Passenger Back | KA1/KB6 | In the passenger compartment, in the passenger seat back | *Back of Passenger Seat Components* | *E14C Seat Heating Element - Passenger Back* |
| E14D | Seat Heating Element - Passenger Cushion | KA1/KB6 | In the passenger compartment, in the passenger seat cushion | *Front of Passenger Seat Components* | *E14D Seat Heating Element - Passenger Cushion* |
| E15 | Steering Wheel Heater | UVD | In the passenger compartment, part of the steering wheel | — | — |
| E17D | Outside Rearview Mirror Glass - Driver | DL3, DL8, DPN or DQS | Outside the vehicle, at the front of the driver door, part of the outside rearview mirror | — | — |
| E17P | Outside Rearview Mirror Glass - Passenger | DL3, DL8, DPN or DQS | Outside the vehicle, at the front of the passenger door, part of the outside rearview mirror | — | — |
| E18 | Rear Defogger Grid | C49 | At the rear of the passenger compartment, part of the rear window glass | *Rear of Vehicle Components* | *E18 Rear Defogger Grid X1* |
| E24 | Intake Air Heater | L5P | In the engine compartment, near the throttle body | *Right Side of Engine Components (L5P)* | — |
| E28 | Center Console Compartment Lamp | D07 | In the passenger compartment, between the front seats, inside the center console storage bin | — | *E28 Center Console Compartment Lamp* |
| E29LF | Fog Lamp - Left Front | T3U | Outside the vehicle, at the left front corner, in the front bumper, below the headlight assembly | • *Front of Vehicle (Chevrolet) Components*<br>• *Front of Vehicle (GMC) Components* | • *E29LF Fog Lamp - Left Front (UD5)*<br>• *E29LF Fog Lamp - Left Front (-UD5)* |
| E29RF | Fog Lamp - Right Front | T3U | Outside the vehicle, at the right front corner, in the front bumper, below the headlight assembly | • *Front of Vehicle (Chevrolet) Components*<br>• *Front of Vehicle (GMC) Components* | • *E29RF Fog Lamp - Right Front (UD5)*<br>• *E29RF Fog Lamp - Right Front (-UD5)* |
| E31L | Sunshade Mirror Lamp - Left | DH6 | In the passenger compartment, at the left front of the headliner | — | *E31L Sunshade Mirror Lamp - Left* |
| E31R | Sunshade Mirror Lamp - Right | DH6 | In the passenger compartment, at the right front of the headliner | — | *E31R Sunshade Mirror Lamp - Right* |
| E33L | Cargo Lamp - Left | S0Y or UF2 | Outside the vehicle, beneath the top of the left side of the bed | — | — |
| E33R | Cargo Lamp - Right | S0Y or UF2 | Outside the vehicle, beneath the top of the right side of the bed | — | — |
| E37B | Dome/Reading Lamps - 2nd Row | Extended or Crew Cab without U42 | In the passenger compartment, near the center of the headliner | — | *E37B Dome/Reading Lamps - 2nd Row* |
| E37EL | Dome/Reading Lamps - Front Overhead Console Left | — | In the passenger compartment, at the left side of the overhead console | — | *E37EL Dome/Reading Lamps - Front Overhead Console Left* |
| E37ER | Dome/Reading Lamps - Front Overhead Console Right | — | In the passenger compartment, at the right side of the overhead console | — | *E37ER Dome/Reading Lamps - Front Overhead Console Right* |
| E40 | Electrical Auxiliary Heater | C32 | In the passenger compartment, at the top of the HVAC box | *Front of HVAC Assembly Components* | — |

| | | | | | |
|---|---|---|---|---|---|
| E42L | Tail Lamp Assembly - Left | — | Outside the vehicle, at the left rear corner of the vehicle | — | — |
| E42R | Tail Lamp Assembly - Right | — | Outside the vehicle, at the right rear corner of the vehicle | — | — |
| E63D | Flood Lamp - Driver Door Handle | A31 | In the passenger compartment, in the driver door handle trim panel | — | — |
| E63P | Flood Lamp - Passenger Door Handle | A31 | In the passenger compartment, in the passenger door handle trim panel | — | — |
| E70D | Outside Rearview Mirror Cargo Lamp - Driver | DPN or DQS | Outside the vehicle, in the outside rearview mirror | — | — |
| E70P | Outside Rearview Mirror Cargo Lamp - Passenger | DPN or DQS | Outside the vehicle, in the outside rearview mirror | — | — |
| F101 | Passenger Instrument Panel Air Bag | — | In the passenger compartment, behind the instrument panel upper glove box | *Rear of Instrument Panel Components* | *F101 Passenger Instrument Panel Air Bag* |
| F102 | Hybrid/EV Battery Pack Cable Cover | HP5 | part of the starter/generator control module | — | *F102 Hybrid/EV Battery Pack Cable Cover* |
| F105L | Roof Rail Air Bag - Left | AY0 | In the passenger compartment, along the left side of the headliner | *Roof Rail Air Bags* | — |
| F105R | Roof Rail Air Bag - Right | AY0 | In the passenger compartment, along the right side of the headliner | *Roof Rail Air Bags* | — |
| F106D | Seat Side Air Bag - Driver | AY0 | In the passenger compartment, in the outboard side of the driver seat back | *Back of Driver Seat Components* | *F106D Seat Side Air Bag - Driver* |
| F106P | Seat Side Air Bag - Passenger | AY0 | In the passenger compartment, in the outboard side of the passenger seat back | *Back of Passenger Seat Components* | *F106P Seat Side Air Bag - Passenger* |
| F107 | Steering Wheel Air Bag | — | In the passenger compartment, mounted to the middle of the steeing wheel | — | — |
| F112D | Seat Belt Retractor Pretensioner - Driver | — | In the passenger compartment, at the base of the driver side B-pillar | — | ● *F112D Seat Belt Retractor Pretensioner - Driver (Crew Cab)*<br>● *F112D Seat Belt Retractor Pretensioner - Driver (Extended Cab)*<br>● *F112D Seat Belt Retractor Pretensioner - Driver (Regular Cab)* |
| F112P | Seat Belt Retractor Pretensioner - Passenger | — | In the passenger compartment, at the base of the passenger side B-pillar | — | ● *F112P Seat Belt Retractor Pretensioner - Passenger (Crew Cab)*<br>● *F112P Seat Belt Retractor Pretensioner - Passenger (Extended Cab)*<br>● *F112P Seat Belt Retractor Pretensioner - Passenger (Regular Cab)* |
| F113D | Seat Belt Anchor Pretensioner - Driver | — | In the passenger compartment, mounted to the outboard driver seat track | *Front of Driver Seat Components* | *F113D Seat Belt Anchor Pretensioner - Driver* |
| F113P | Seat Belt Anchor Pretensioner - Passenger | — | In the passenger compartment, mounted to the outboard passenger seat track | *Front of Passenger Seat Components* | *F113P Seat Belt Anchor Pretensioner - Passenger* |

| | | | | | |
|---|---|---|---|---|---|
| G1 | A/C Compressor | C67 or CJ2 | In the engine compartment, mounted on the lower front of the engine | *Left Side of Engine Components (L5P)* | — |
| G10L | Cooling Fan Motor - Left | 1500 | In the engine compartment, in the radiator shroud | *Cooling Fans (HP5)* | *G10L Cooling Fan Motor - Left* |
| G10R | Cooling Fan Motor - Right | 1500 | In the engine compartment, in the radiator shroud | *Cooling Fans (HP5)* | *G10R Cooling Fan Motor - Right* |
| G12A | Fuel Pump - Primary | without L5P | Under the vehicle, in the primary fuel tank, part of the fuel pump and level sensor assembly | — | *G12A Fuel Pump - Primary* |
| G12B | Fuel Pump - Secondary | L96 with N2N | Under the vehicle, in the secondary fuel tank, part of the fuel pump and level sensor assembly | — | • *G12B Fuel Pump - Secondary (L5P)*<br>• *G12B Fuel Pump - Secondary (L96)* |
| G13E | Generator - Auxiliary | KH5 or KHB | In the engine compartment, at the top right front of the engine | *Right Side of Engine Components (L5P)* | *G13E Generator - Auxiliary* |
| G13 | Generator | — | In the engine compartment, at the top left front of the engine | • *Left Side of Engine Components (L96)*<br>• *Left Side of Engine Components (L5P)*<br>• *Right Rear of Engine Components (LV3)* | *G13 Generator X1* |
| G14 | Hybrid/EV Battery Pack Cooling Fan | HP5 | Under the center console, inside the Hybrid/EV Battery Pack | *Hybrid/EV Battery Pack (3 of 3)* | *G14 Hybrid/EV Battery Pack Cooling Fan* |
| G17 | Heater Coolant Pump | HP5 | In the engine compartment, lower left rear mounted to engine block | *Right Rear Side of Engine Components (L8B)* | *G17 Heater Coolant Pump (L8B)* |
| G18 | High Pressure Fuel Pump | 1500 | In the engine compartment, at the top rear of the engine, between the cylinder heads | • *Top of Engine Components (LV3)*<br>• *Top of Engine Components (L83/L86/L8B)* | *G18 High Pressure Fuel Pump* |
| G24 | Windshield Washer Pump | — | In the engine compartment, attached to the washer fluid reservoir, below the left headlamp assembly | *Left Side of Engine Compartment Components (except L5P)* | *G24 Windshield Washer Pump* |
| G33 | Reductant Pump | L5P | Under the vehicle, above the right front reductant tank | — | — |
| G43 | Starter/Generator Coolant Pump | HP5 | In the engine compartment, left lower front corner of engine | *Cooling Fans (HP5)* | *G43 Starter/Generator Coolant Pump* |
| K4 | Assist Step Control Module | BRS | Underneath the vehicle, along the outside of the left frame rail, near the driver door | — | • *K4 Assist Step Control Module X1*<br>• *K4 Assist Step Control Module X2* |
| K9 | Body Control Module | — | In the passenger compartment, behind the driver side of the instrument panel, outboard of the steering column | *Rear of Instrument Panel Components* | • *K9 Body Control Module X1*<br>• *K9 Body Control Module X2*<br>• *K9 Body Control Module X4*<br>• *K9 Body Control Module X5*<br>• *K9 Body Control Module X6*<br>• *K9 Body Control Module X7* |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| K17 | Electronic Brake Control Module | — | Under the vehicle, mounted to the left side of the frame rail | - *Chassis Components (Chassis Cab)*<br>- *Chassis Components (2500/3500)* | - *K17 Electronic Brake Control Module (Heavy Duty)*<br>- *K17 Electronic Brake Control Module (Light Duty)* |
| K19 | Suspension Control Module | Z95 | Under the vehicle, mounted to the bracket above the spare tire | *Rear Chassis Components (except Chassis Cab or L5P)* | *K19 Suspension Control Module* |
| K20 | Engine Control Module | — | In the engine compartment, left front of the engine, near the underhood fuse block | - *Left Side of Engine Compartment Components (L5P)*<br>- *Left Side of Engine Compartment Components (except L5P)* | - *K20 Engine Control Module X1 (L5P)*<br>- *K20 Engine Control Module X1 (L96)*<br>- *K20 Engine Control Module X1 (LV3/L83/L86/L8B)*<br>- *K20 Engine Control Module X2 (L83 with MYC except NQH/NQG)*<br>- *K20 Engine Control Module X2 (L5P)*<br>- *K20 Engine Control Module X2 (L96)*<br>- *K20 Engine Control Module X2 (LV3-(NQG/NQH))*<br>- *K20 Engine Control Module X2 (L83/L86/LV3+(NQG/NQH))*<br>- *K20 Engine Control Module X3 (L83/L86)*<br>- *K20 Engine Control Module X3 (L5P)*<br>- *K20 Engine Control Module X3 (L96)*<br>- *K20 Engine Control Module X3 (LV3)* |
| K22 | Cooling Fan Control Module | L5P | In the engine compartment, mounted in the fan shroud | — | *K22 Cooling Fan Control Module* |
| K29 | Seat Heating Control Module | KA1 without KB6 | In the passenger compartment, under the front of the passenger seat | - *Bottom of Passenger Seat Components (without GAJ or Y91)*<br>- *Bottom of Passenger Seat Components (GAJ or Y91)* | - *K29 Seat Heating Control Module X1*<br>- *K29 Seat Heating Control Module X2* |
| K32 | Steering Wheel Heating Control Module | UVD | In the passenger compartment, in the steering wheel, behind the driver air bag | — | — |
| K33 | HVAC Control Module | — | In the passenger compartment, behind the passenger side of the instrument panel, at the top of the HVAC box | *Front of HVAC Assembly Components* | — |
| K34 | Glow Plug Control Module | L5P | In the engine compartment, mounted to the top of the engine | *Right Side of Engine Components (L5P)* | *K34 Glow Plug Control Module X2* |
| K36 | Inflatable Restraint Sensing and Diagnostic Module | — | In the passenger compartment, bolted to the floor between the front seats or under console if equiped | — | - *K36 Inflatable Restraint Sensing and Diagnostic Module X1*<br>- *K36 Inflatable Restraint Sensing and Diagnostic Module X2* |
| K38 | Chassis Control Module | — | Under the vehicle, mounted to the bracket above the spare tire | - *Chassis Components (2500/3500)*<br>- *Rear Chassis Components (except Chassis Cab or L5P)*<br>- *Chassis Components (Chassis Cab)* | - *K38A Chassis Control Module - Auxiliary (JL1)*<br>- *K38 Chassis Control Module (Light Duty)* |

| | | | | | |
|---|---|---|---|---|---|
| K40 | Seat Memory Control Module | A45 | In the passenger compartment, under the driver seat | *Bottom of Driver Seat Components* | • *K40 Seat Memory Control Module X1*<br>• *K40 Seat Memory Control Module X2*<br>• *K40 Seat Memory Control Module X3*<br>• *K40 Seat Memory Control Module X4*<br>• *K40 Seat Memory Control Module X5*<br>• *K40 Seat Memory Control Module X6* |
| K41 | Front and Rear Parking Assist Control Module | UD5 or UD7 | In the passenger compartment, bolted to the passenger side of the rear wall, behind the rear seat right side | — | — |
| K43 | Power Steering Control Module | — | Under the vehicle, part of the steering gear assembly | — | *K43 Power Steering Control Module* |
| K44 | Power Take-Off Control Module | PTO | Under the vehicle, mounted to the passenger side of the frame | • *Underbody Components (L5P)*<br>• *Chassis Components (2500/3500)* | • *K44 Power Take-Off Control Module X1*<br>• *K44 Power Take-Off Control Module X2* |
| K59 | Starter/Generator Control Module | HP5 | Under the center console, inside the Hybrid/EV Battery Pack | • *Right Rear of Engine Compartment Components (HP5)*<br>• *Front Center of the Passenger Compartment Components (HP5)* | *K59 Starter/Generator Control Module X5* |
| K69 | Transfer Case Control Module | NQF or NQH | In the passenger compartment, bolted to the bulkhead at the right side of the driver footwell above accelerator pedal | — | • *K69 Transfer Case Control Module X1*<br>• *K69 Transfer Case Control Module X2*<br>• *K69 Transfer Case Control Module X3* |
| K71 | Transmission Control Module | MW7 | In the engine compartment, mounted to the left side of the engine cooling fan shroud | • *Left Side of Engine Compartment Components (except L5P)*<br>• *Left Side of Engine Compartment Components (L5P)* | *K71 Transmission Control Module* |
| K71 | Transmission Control Module | M5U | In the engine compartment, left rear side of bulkhead, near the brake master cylinder brake booster | • *Left Side of Engine Compartment Components (except L5P)*<br>• *Left Side of Engine Compartment Components (L5P)* | *K71 Transmission Control Module* |
| K71 | Transmission Control Module | MYC or MYD | In the engine compartment, inside the transmission assembly, part of the control solenoid valve | • *Left Side of Engine Compartment Components (except L5P)*<br>• *Left Side of Engine Compartment Components (L5P)* | *K71 Transmission Control Module* |
| K73 | Telematics Communication Interface Control Module | UE1 | In the passenger compartment, in the middle of the instrument panel, behind the info display module | *Rear of Instrument Panel Components* | • *K73 Telematics Communication Interface Control Module X1*<br>• *K73 Telematics Communication Interface Control Module X2* |

| | | | | | |
|---|---|---|---|---|---|
| K74 | Human Machine Interface Control Module | IO5 or IO6 | In the passenger compartment, behind the passenger side of the instrument panel, above the hush panel | *Rear of Instrument Panel Components* | • *K74 Human Machine Interface Control Module X1*<br>• *K74 Human Machine Interface Control Module X2* |
| K77 | Remote Control Door Lock Receiver | AU3 | In the passenger compartment, at the right rear top of headliner | — | *K77 Remote Control Door Lock Receiver* |
| K81L | Headlamp High Beam Control Module - Left | Z88 | At the front of the vehicle, part of the left headlamp assembly | — | — |
| K81R | Headlamp High Beam Control Module - Right | Z88 | At the front of the vehicle, part of the right headlamp assembly | — | — |
| K85 | Passenger Presence Module | AL0 | In the passenger compartment, in the passenger seat cushion | *Bottom of Passenger Seat Components (without GAJ or Y91)* | *K85 Passenger Presence Module* |
| K89 | Immobilizer Control Module | — | In the passenger compartment, on the steering column side, near the ignition cylinder | — | — |
| K107A | Drive Motor 1 Control Module | HP5 | Under the center console, inside the Starter/Generator Control Module | — | — |
| K111 | Fuel Pump Driver Control Module | 1500 | Under the vehicle, mounted to the bracket above the spare tire | — | • *K111 Fuel Pump Driver Control Module (Heavy Duty+L5P)*<br>• *K38 Chassis Control Module (L96)*<br>• *K111 Fuel Pump Driver Control Module (Light Duty)* |
| K112A | Hybrid/EV Battery Interface Control Module 1 | HP5 | Under the center console, inside the Hybrid/EV Battery Pack | *Hybrid/EV Battery Pack (2 of 3)* | • *K112A Hybrid/EV Battery Interface Control Module 1 X1*<br>• *K112A Hybrid/EV Battery Interface Control Module 1 X2* |
| K112B | Hybrid/EV Battery Interface Control Module 2 | HP5 | Under the center console, inside the Hybrid/EV Battery Pack | *Hybrid/EV Battery Pack (2 of 3)* | • *K112B Hybrid/EV Battery Interface Control Module 2 X1*<br>• *K112B Hybrid/EV Battery Interface Control Module 2 X2* |
| K114B | Hybrid/EV Powertrain Control Module 2 | HP5 | Under the center console, inside the Hybrid/EV Battery Pack | *Hybrid/EV Battery Pack (1 of 3)* | • *K114B Hybrid/EV Powertrain Control Module 2 X1*<br>• *K114B Hybrid/EV Powertrain Control Module 2 X2*<br>• *K114B Hybrid/EV Powertrain Control Module 2 X3*<br>• *K114B Hybrid/EV Powertrain Control Module 2 X4*<br>• *K114B Hybrid/EV Powertrain Control Module 2 X5*<br>• *K114B Hybrid/EV Powertrain Control Module 2 X6*<br>• *K114B Hybrid/EV Powertrain Control Module 2 X7* |
| K114 | Hybrid/EV Powertrain Control Module | HP5 | Under the center console, inside the Hybrid/EV Battery Pack | *Hybrid/EV Battery Pack (2 of 3)* | — |

| | | | | | |
|---|---|---|---|---|---|
| K119 | CNG Control Module | LC8 | In the engine compartment, mounted to a bracket that is mounted to the bottom of the battery tray, on the left front of the engine compartment | — | — |
| K130 | Fuel Pump Disable Control Module | LC8 | In the engine compartment, mounted to a bracket that is mounted to the bottom of the battery tray, on the left front of the engine compartment | — | — |
| K133 | Trailer Brake Power Control Module | JL1 | Under the vehicle, mounted to the bracket above the spare tire | ● *Chassis Components (2500/3500)*<br>● *Chassis Components (Chassis Cab)* | *K133 Trailer Brake Power Control Module* |
| K166L | Multifunction LED Control Module - Left Headlamp | Z88 with SLT | At the front of the vehicle, part of the left headlamp assembly | — | — |
| K166R | Multifunction LED Control Module - Right Headlamp | Z88 with SLT | At the front of the vehicle, part of the right headlamp assembly | — | — |
| KR58 | Roof Beacon Relay | TRW | In the passenger compartment, overhead, in the overhead console | — | *KR58 Roof Beacon Relay* |
| KR79 | Auxiliary Battery Relay 2 | K4B or K4D | In the engine compartment, left side, near C1B Auxiliary Battery | — | — |
| KR81 | Auxiliary Battery Relay 1 | K4B or K4D | In the engine compartment, left side, near C1B Auxiliary Battery | — | — |
| KR134A | Hybrid/EV Battery Negative Contactor | HP5 | part of the Hybrid/EV battery pack | — | — |
| KR134B | Hybrid/EV Battery Positive Contactor | HP5 | part of the Hybrid/EV battery pack | — | — |
| KR134 | Pre-Charge Contactor | HP5 | part of the Hybrid/EV battery pack | — | — |
| KR145 | Alternative Fuel Injector Relay | LC8 | Under the vehicle, near the left frame rail, above the spare tire, taped in the chassis harness | — | — |
| KR160 | Fuel Pump Disable Relay | LC8 | In the CNG tank box, part of the CNG Fuel Tank Assembly | — | — |
| M4 | Air Inlet Door Actuator | — | In the passenger compartment, behind the instrument panel glove box | *Front of HVAC Assembly Components* | — |
| M5 | Adjustable Pedal Motor | JF4 | In the passenger compartment, part of the accelerator pedal bracket assembly | — | *M5 Adjustable Pedal Motor* |
| M6L | Air Temperature Door Actuator - Left | — | In the passenger compartment, part of HVAC module, behind the instrument panel | *Front of HVAC Assembly Components* | — |
| M6R | Air Temperature Door Actuator - Right | CJ2 | In the passenger compartment, part of HVAC module, behind the instrument panel | *Back of HVAC Assembly Components* | — |
| M7 | Transmission Shift Lock Control Solenoid Actuator | M5U, MW7, MYC or MYD | In the passenger compartment, right side of the steering wheel, attached to transmission shift lever | — | — |
| M8 | Blower Motor | — | In the passenger compartment, under the rigth side of the instrument panel, above the hush panel | *Back of HVAC Assembly Components* | — |
| M9 | Brake Booster Pump Motor | HP5 | In the right front wheelwell, mounted to the frame, forward of the axle shaft | — | — |

| | | | | | |
|---|---|---|---|---|---|
| M26 | Front Axle Engagement Actuator | NQF, MQG or MQH | Under the vehicle, mounted to the front axle | *Front Axle Components* | *M26 Front Axle Engagement Actuator* |
| M28L | High Beam Solenoid Actuator - Left | Z88 | Outside the vehicle, at the left front corner, part of the headlight assembly | — | — |
| M28R | High Beam Solenoid Actuator - Right | Z88 | Outside the vehicle, at the right front corner, part of the headlight assembly | — | — |
| M37L | Mode Door Actuator - Left | — | In the passenger compartment, behind the left side of the instrument panel, on the upper left side of the HVAC module | *Front of HVAC Assembly Components* | — |
| M38 | Power Steering Motor | 1500 | Under the vehicle, part of the steering gear assembly | — | — |
| M50D | Seat Front Vertical Motor - Driver | — | In the passenger compartment, under the driver seat | *Bottom of Driver Seat Components* | *M50D Seat Front Vertical Motor - Driver* |
| M50P | Seat Front Vertical Motor - Passenger | — | In the passenger compartment, under the passenger seat | *Bottom of Passenger Seat Components (GAJ or Y91)* | *M50P Seat Front Vertical Motor - Passenger* |
| M51D | Seat Horizontal Motor - Driver | — | In the passenger compartment, under the driver seat | *Bottom of Driver Seat Components* | *M51D Seat Horizontal Motor - Driver* |
| M51P | Seat Horizontal Motor - Passenger | — | In the passenger compartment, under the passenger seat | • *Bottom of Passenger Seat Components (without GAJ or Y91)*<br>• *Bottom of Passenger Seat Components (GAJ or Y91)* | *M51P Seat Horizontal Motor - Passenger* |
| M52D | Seat Lumbar Support Horizontal Motor - Driver | — | In the passenger compartment, in the driver seat back | *Back of Driver Seat Components* | *M52D Seat Lumbar Support Horizontal Motor - Driver* |
| M52P | Seat Lumbar Support Horizontal Motor - Passenger | — | In the passenger compartment, in the passenger seat back | *Back of Passenger Seat Components* | *M52P Seat Lumbar Support Horizontal Motor - Passenger* |
| M54D | Seat Lumbar Support Vertical Motor - Driver | — | In the passenger compartment, in the driver seat back | — | — |
| M54P | Seat Lumbar Support Vertical Motor - Passenger | — | In the passenger compartment, in the passenger seat back | — | — |
| M55D | Seat Rear Vertical Motor - Driver | — | In the passenger compartment, under the driver seat | *Bottom of Driver Seat Components* | *M55D Seat Rear Vertical Motor - Driver* |
| M55P | Seat Rear Vertical Motor - Passenger | — | In the passenger compartment, under the passenger seat | *Bottom of Passenger Seat Components (GAJ or Y91)* | *M55P Seat Rear Vertical Motor - Passenger* |
| M56D | Seat Recline Motor - Driver | — | In the passenger compartment, in the driver seat back | *Back of Driver Seat Components* | *M56D Seat Recline Motor - Driver* |
| M56P | Seat Recline Motor - Passenger | — | In the passenger compartment, in the passenger seat back | *Back of Passenger Seat Components* | *M56P Seat Recline Motor - Passenger* |
| M60A | Active Grille Air Shutter 1 Motor Module | HP5 | Outside the vehicle, near the left front corner of the vehicle, behind the fascia | — | — |
| M63 | Sliding Rear Window Motor | A48 | In the passenger compartment, mounted the the passenger side of the rear wall, behind the rear seat | — | *M63 Sliding Rear Window Motor* |

| | | | | | |
|---|---|---|---|---|---|
| M64 | Starter Motor | — | In the engine compartment, mounted to the rear of the engine block | • *Right Rear of Engine Components (LV3)*<br>• *Right Side of Engine Components (L5P)*<br>• *Right Side of Engine Components (L96)*<br>• *Underbody Components (L5P)*<br>• *Right Rear Side of Engine Components (L8B)* | • *M64 Starter Motor (L5P)*<br>• *M64 Starter Motor (L96/LC8)*<br>• *M64 Starter Motor (LV1/LV3)* |
| M69 | Sunroof Motor | CF5 | In the passenger compartment, at the front of the roof, above the headliner | — | — |
| M72 | Variable Power Steering Solenoid Valve | NV8 | In the passenger compartment, on the steering column near the base of the shifter | — | — |
| M73A | Seat Blower Motor - Driver Back | KB6 | In the passenger compartment, in the driver seat back | *Back of Driver Seat Components* | *M73A Seat Blower Motor - Driver Back* |
| M73B | Seat Blower Motor - Passenger Back | KB6 | In the passenger compartment, in the passenger seat cback | *Back of Passenger Seat Components* | *M73B Seat Blower Motor - Passenger Back* |
| M73C | Seat Blower Motor - Driver Cushion | KB6 | In the passenger compartment, in the driver seat cushion | *Bottom of Driver Seat Components* | *M73C Seat Blower Motor - Driver Cushion* |
| M73D | Seat Blower Motor - Passenger Cushion | KB6 | In the passenger compartment, in the passenger seat cushion | *Bottom of Passenger Seat Components (GAJ or Y91)* | *M73D Seat Blower Motor - Passenger Cushion* |
| M74D | Window Motor - Driver | A31 | In the passenger compartment, in the driver door | *Driver Door Components* | *M74D Window Motor - Driver* |
| M74LR | Window Motor - Left Rear | Extended or Crew Cab | In the passenger compartment, in the left rear door | *Left Rear Door Components* | *M74LR Window Motor - Left Rear* |
| M74P | Window Motor - Passenger | A31 | In the passenger compartment, in the passenger door | *Passenger Door Components* | *M74P Window Motor - Passenger* |
| M74RR | Window Motor - Right Rear | Extended or Crew Cab | In the passenger compartment, in the right rear door | *Right Rear Door Components* | *M74RR Window Motor - Right Rear* |
| M75 | Windshield Wiper Motor | — | Outside the vehicle, at the left rear of the engine compartment, below the left lower corner of the windshield | *Left Side of Engine Compartment Components (except L5P)* | *M75 Windshield Wiper Motor* |
| M77D | Outside Rearview Mirror Motor - Driver | DL3, DL8, DPN or DQS | Outside the vehicle, at the front of the driver door, part of the outside rearview mirror | — | — |
| M77P | Outside Rearview Mirror Motor - Passenger | DL3, DL8, DPN or DQS | Outside the vehicle, at the front of the passenger door, part of the outside rearview mirror | — | — |
| M78D | Outside Rearview Mirror Folding Motor - Driver | DL3 or DQS | Outside the vehicle, at the front of the driver door, part of the outside rearview mirror | — | — |
| M78P | Outside Rearview Mirror Folding Motor - Passenger | DL3 or DQS | Outside the vehicle, at the front of the passenger door, part of the outside rearview mirror | — | — |
| M95L | Assist Step - Left | BRS | Under the vehicle, along the left frame rail, under the driver door | — | *M95L Assist Step - Left* |
| M95R | Assist Step - Right | BRS | Under the vehicle, along the right frame rail, under the passenger door | — | *M95R Assist Step - Right* |

| | | | | | |
|---|---|---|---|---|---|
| P3 | Backup Alarm | 8S3 | Under the rear of the vehicle, mounted on the right frame rail | — | *P3 Backup Alarm (8S3)* |
| P9 | Driver Information Center Display | — | In the passenger compartment, part of the instrument cluster | — | — |
| P12 | Horn | — | In the engine compartment, at the left side of the radiator core support | *Left Side of Engine Compartment Components (except L5P)* | *P12 Horn* |
| P14 | Passenger Air Bag Disabled Indicator | — | In the passenger compartment, at the front of the roof, in the overhead console | — | *P14 Passenger Air Bag Disabled Indicator* |
| P16 | Instrument Cluster | — | In the passenger compartment, in the driver side of the instrument panel | — | • *P16 Instrument Cluster (UHS)*<br>• *P16 Instrument Cluster (-UHS)* |
| P17 | Info Display Module | — | In the passenger compartment, at the center of the instrument panel | — | • *P17 Info Display Module X1 (IO3)*<br>• *P17 Info Display Module X1 (IO5/IO6)*<br>• *P17 Info Display Module X1 (IOB)*<br>• *P17 Info Display Module X2*<br>• *P17 Info Display Module X3 (IO3/IO5/IO6)* |
| P19AC | Speaker - Subwoofer | UQA | In the passenger compartment, under the instrument panel, at the front of the center console | — | *P19AC Speaker - Subwoofer* |
| P19AG | Speaker - Left Front Door | — | In the passenger compartment, in the driver door | *Driver Door Components* | *P19AG Speaker - Left Front Door* |
| P19AH | Speaker - Right Front Door | — | In the passenger compartment, in the passenger door | *Passenger Door Components* | *P19AH Speaker - Right Front Door* |
| P19AL | Speaker - Left Rear Door | Extended or Crew Cab | In the passenger compartment, in the left rear door | *Left Rear Door Components* | *P19AL Speaker - Left Rear Door* |
| P19AM | Speaker - Right Rear Door | Extended or Crew Cab | In the passenger compartment, in the right rear door | *Right Rear Door Components* | *P19AM Speaker - Right Rear Door* |
| P19AN | Speaker - Left Rear Trim Panel | Regular Cab | In the passenger compartment, at the left rear corner of the cab, near the driver seat headrest | — | *P19AN Speaker - Left Rear Trim Panel* |
| P19AP | Speaker - Right Rear Trim Panel | Regular Cab | In the passenger compartment, at the right rear corner of the cab, near the passenger seat headrest | — | *P19AP Speaker - Right Rear Trim Panel* |
| P19J | Speaker - Left Instrument Panel | UQ3, UQA or UQG | In the passenger compartment, in the top of the left side of the instrument panel | — | • *P19J Speaker - Left Instrument Panel (UQ3/UQG)*<br>• *P19J Speaker - Left Instrument Panel (UQA/UQS/UQH-UQG)* |
| P19W | Speaker - Right Instrument Panel | UQ3, UQA or UQG | In the passenger compartment, in the top of the right side of the instrument panel | — | • *P19W Speaker - Right Instrument Panel (UQ3/UQG/UQ5)*<br>• *P19W Speaker - Right Instrument Panel (UQA)* |
| P22A | Video Display - 2nd Row | U42 | In the passenger compartment, near the center of the headliner | — | *P22A Video Display - 2nd Row* |

| | | | | | |
|---|---|---|---|---|---|
| P43 | Collision Alert Indicators | UEU | In the passenger compartment, in the top of the instrument panel, near the windshield, in front of the driver | — | *P43 Collision Alert Indicators* |
| P45LR | Seat Haptic Movement Motor - Driver Left Rear | UEU or UFL | In the passenger compartment, in the left side of the driver seat cushion | *Bottom of Driver Seat Components* | *P45LR Seat Haptic Movement Motor - Driver Left Rear* |
| P45RR | Seat Haptic Movement Motor - Driver Right Rear | UEU or UFL | In the passenger compartment, in the right side of the driver seat cushion | *Bottom of Driver Seat Components* | *P45RR Seat Haptic Movement Motor - Driver Right Rear* |
| Q2 | A/C Compressor Clutch | C67 or CJ2 | In the engine compartment, at the front of the A/C compressor | • *Right Side of Engine Components (L96)*<br>• *Right Rear of Engine Components (LV3)* | *Q2 A/C Compressor Clutch* |
| Q5 | Brake Pressure Modulator | — | In the engine compartment, left rear, part of the Brake Control Module | — | — |
| Q6 | Camshaft Position Actuator Solenoid Valve | except L5P | In the engine compartment, at the front right side of the engine | *Left Front of Engine Components (LV3)* | *Q6 Camshaft Position Actuator Solenoid Valve* |
| Q8 | Control Solenoid Valve Assembly | MYC or MYD | Under the vehicle, inside the transmission assembly | *Automatic Transmission Internal Components (MYC or MYD)* | *Q8 Control Solenoid Valve Assembly X1* |
| Q12 | Evaporative Emission Purge Solenoid Valve | except L5P | In the engine compartment, at the top middle rear of the engine | • *Left Side of Engine Components (L96)*<br>• *Left Front of Engine Components (LV3)* | • *Q12 Evaporative Emission Purge Solenoid Valve (L96/LC8)*<br>• *Q12 Evaporative Emission Purge Solenoid Valve (LV1/LV3)* |
| Q13 | Evaporative Emission Vent Solenoid Valve | except L5P | On the underbody, at the top leftt side of the fuel tank | • *Chassis Components (Chassis Cab)*<br>• *Chassis Components (2500/3500)* | *Q13 Evaporative Emission Vent Solenoid Valve* |
| Q14 | Exhaust Gas Recirculation Valve | L5P | In the engine compartment, on the top left middle of the engine | *Left Side of Engine Components (L5P)* | *Q14 Exhaust Gas Recirculation Valve* |
| Q17A | Fuel Injector 1 | — | In the engine compartment, in the cylinder head above cylinder 1 | • *Right Side of Engine Components (L5P)*<br>• *Top of Engine Components (L83/L86/L8B)*<br>• *Left Side of Engine Components (L96)* | • *Q17A Fuel Injector 1 (L5P)*<br>• *Q17A Fuel Injector 1 (L96/LC8)* |
| Q17B | Fuel Injector 2 | — | In the engine compartment, in the cylinder head above cylinder 2 | • *Top of Engine Components (L83/L86/L8B)*<br>• *Left Side of Engine Components (L5P)*<br>• *Right Side of Engine Components (L96)* | • *Q17B Fuel Injector 2 (L5P)*<br>• *Q17B Fuel Injector 2 (L96/LC8)* |
| Q17C | Fuel Injector 3 | — | In the engine compartment, in the cylinder head above cylinder 3 | • *Right Side of Engine Components (L5P)*<br>• *Top of Engine Components (L83/L86/L8B)*<br>• *Left Side of Engine Components (L96)* | • *Q17C Fuel Injector 3 (L5P)*<br>• *Q17C Fuel Injector 3 (L96/LC8)* |

| | | | | | |
|---|---|---|---|---|---|
| Q17D | Fuel Injector 4 | — | In the engine compartment, in the cylinder head above cylinder 4 | • *Right Side of Engine Components (L96)*<br>• *Top of Engine Components (L83/L86/L8B)*<br>• *Left Side of Engine Components (L5P)* | • *Q17D Fuel Injector 4 (L5P)*<br>• *Q17D Fuel Injector 4 (L96/LC8)* |
| Q17E | Fuel Injector 5 | — | In the engine compartment, in the cylinder head above cylinder 5 | • *Top of Engine Components (L83/L86/L8B)*<br>• *Right Rear Side of the Engine Components (L5P)*<br>• *Left Side of Engine Components (L96)* | • *Q17E Fuel Injector 5 (L5P)*<br>• *Q17E Fuel Injector 5 (L96/LC8)* |
| Q17F | Fuel Injector 6 | — | In the engine compartment, in the cylinder head above cylinder 6 | • *Right Side of Engine Components (L96)*<br>• *Top of Engine Components (L83/L86/L8B)*<br>• *Left Side of Engine Components (L5P)* | • *Q17F Fuel Injector 6 (L5P)*<br>• *Q17F Fuel Injector 6 (L96/LC8)* |
| Q17G | Fuel Injector 7 | — | In the engine compartment, in the cylinder head above cylinder 7 | • *Left Side of Engine Components (L96)*<br>• *Top of Engine Components (L83/L86/L8B)*<br>• *Right Rear Side of the Engine Components (L5P)* | • *Q17G Fuel Injector 7 (L5P)*<br>• *Q17G Fuel Injector 7 (L96/LC8)* |
| Q17H | Fuel Injector 8 | — | In the engine compartment, in the cylinder head above cylinder 8 | • *Right Side of Engine Components (L96)*<br>• *Left Side of Engine Components (L5P)*<br>• *Top of Engine Components (L83/L86/L8B)* | • *Q17H Fuel Injector 8 (L5P)*<br>• *Q17H Fuel Injector 8 (L96/LC8)* |
| Q18A | Fuel Pressure Regulator 1 | L5P | In the engine compartment, mounted on top of the fuel injection pump | *Top of the Engine Components (L5P)* | *Q18A Fuel Pressure Regulator 1* |
| Q18B | Fuel Pressure Regulator 2 | L5P | In the engine compartment | *Top of the Engine Components (L5P)* | — |
| Q23 | Line Pressure Control Solenoid Valve | MW7 | Under the vehicle, inside the transmission assembly | — | — |
| Q27A | Pressure Control Solenoid Valve 1 | MW7, MYC or MYD | Under the vehicle, inside the transmission assembly | — | — |
| Q27B | Pressure Control Solenoid Valve 2 | MW7, MYC or MYD | Under the vehicle, inside the transmission assembly | — | — |
| Q27C | Pressure Control Solenoid Valve 3 | MYC or MYD | Under the vehicle, inside the transmission assembly | — | — |
| Q27D | Pressure Control Solenoid Valve 4 | MYC or MYD | Under the vehicle, inside the transmission assembly | — | — |
| Q27E | Pressure Control Solenoid Valve 5 | MYC or MYD | Under the vehicle, inside the transmission assembly | — | — |

| | | | | | |
|---|---|---|---|---|---|
| Q32A | Shift Solenoid Valve 1 | MW7, MYC or MYD | Under the vehicle, inside the transmission assembly | — | — |
| Q32B | Shift Solenoid Valve 2 | MW7, MYC or MYD | Under the vehicle, inside the transmission assembly | — | — |
| Q32C | Shift Solenoid Valve 3 | MW7 | Under the vehicle, inside the transmission assembly | — | — |
| Q37LF | Shock Absorber Actuator - Left Front | Z95 | Under the vehicle, part of the shock absorber | *Front Chassis Components (1500)* | *Q37LF Shock Absorber Actuator - Left Front* |
| Q37LR | Shock Absorber Actuator - Left Rear | Z95 | Under the vehicle, part of the shock absorber | *Rear Chassis Components (except Chassis Cab or L5P)* | *Q37LR Shock Absorber Actuator - Left Rear* |
| Q37RF | Shock Absorber Actuator - Right Front | Z95 | Under the vehicle, part of the shock absorber | *Front Chassis Components (1500)* | *Q37RF Shock Absorber Actuator - Right Front* |
| Q37RR | Shock Absorber Actuator - Right Rear | Z95 | Under the vehicle, part of the shock absorber | *Rear Chassis Components (except Chassis Cab or L5P)* | *Q37RR Shock Absorber Actuator - Right Rear* |
| Q38 | Throttle Body | — | In the engine compartment, at the top of the engine, mounted to the intake manifold inlet | • *Right Rear of Engine Components (LV3)*<br>• *Right Side of Engine Components (L5P)*<br>• *Right Side of Engine Components (L96)* | • *Q38 Throttle Body (L5P)*<br>• *Q38 Throttle Body (L96/LC8)*<br>• *Q38 Throttle Body (LV3)* |
| Q39A | Torque Converter Clutch Pressure Control Solenoid Valve | MW7, MYC or MYD | Under the vehicle, inside the transmission assembly | — | — |
| Q41 | Turbocharger Vane Position Control Solenoid Valve | L5P | In the engine compartment, at the top of the engine | *Right Rear Side of the Engine Components (L5P)* | — |
| Q43 | Valve Lifter Oil Manifold Assembly | 1500 | In the engine compartment, mounted in the valve lifter valley below the intake manifold | *Left Front of Engine Components (LV3)* | *Q43 Valve Lifter Oil Manifold Assembly (LV3)* |
| Q44 | Engine Oil Pressure Control Solenoid Valve | 1500 | In the engine compartment, at the front of the engine, behind the front cover | — | *Q44 Engine Oil Pressure Control Solenoid Valve* |
| Q46 | A/C Compressor Solenoid Valve | C67 or CJ2 | In the front of the engine compartment, part of the compressor assembly | • *Right Side of Engine Components (L96)*<br>• *Right Rear of Engine Components (LV3)* | *Q46 A/C Compressor Solenoid Valve* |
| Q47 | Exhaust Gas Recirculation Cooler Bypass Solenoid Valve | L5P | In the engine compartment, on the top right rear of the engine | *Right Rear Side of the Engine Components (L5P)* | *Q47 Exhaust Gas Recirculation Cooler Bypass Solenoid Valve* |
| Q61 | Reductant Injector | L5P | Under the vehicle, attached to the exhaust pipe, near the rear of the catalytic converter | *Underbody Components (L5P)* | *Q61 Reductant Injector* |
| Q67 | Exhaust Aftertreatment Fuel Injector | L5P | In the engine compartment, on the right rear side of the engine, above fuel injector 5 | *Right Rear Side of the Engine Components (L5P)* | *Q67 Exhaust Aftertreatment Fuel Injector* |
| Q68A | CNG Cut-Off Solenoid Valve 1 | LC8 | Under the vehicle, part of the CNG pressure regulator | — | — |
| Q68B | CNG Cut-Off Solenoid Valve 2 | LC8 | In the CNG tank cover, part of the CNG Fuel Tank Assembly | — | — |
| Q70A | Alternative Fuel Injector 1 | LC8 | In the engine compartment, near the left side engine rocker cover above cylinder number 1 | — | — |

| | | | | | |
|---|---|---|---|---|---|
| Q70B | Alternative Fuel Injector 2 | LC8 | In the engine compartment, near the right side engine rocker cover above cylinder number 2 | — | — |
| Q70C | Alternative Fuel Injector 3 | LC8 | In the engine compartment, near the left side engine rocker cover above cylinder number 3 | — | — |
| Q70D | Alternative Fuel Injector 4 | LC8 | In the engine compartment, near the right side engine rocker cover above cylinder number 4 | — | — |
| Q70E | Alternative Fuel Injector 5 | LC8 | In the engine compartment, near the left side engine rocker cover above cylinder number 5 | — | — |
| Q70F | Alternative Fuel Injector 6 | LC8 | In the engine compartment, near the right side engine rocker cover above cylinder number 6 | — | — |
| Q70G | Alternative Fuel Injector 7 | LC8 | In the engine compartment, near the left side engine rocker cover above cylinder number 7 | — | — |
| Q70H | Alternative Fuel Injector 8 | LC8 | In the engine compartment, near the right side engine rocker cover above cylinder number 8 | — | — |
| Q77A | Transmission Control Solenoid Valve 1 | M5U | Under the vehicle, inside the transmission assembly | *Automatic Transmission Valve Body Components (M5U)* | — |
| Q77B | Transmission Control Solenoid Valve 2 | M5U | Under the vehicle, inside the transmission assembly | *Automatic Transmission Valve Body Components (M5U)* | — |
| Q77C | Transmission Control Solenoid Valve 3 | M5U | Under the vehicle, inside the transmission assembly | *Automatic Transmission Valve Body Components (M5U)* | — |
| Q77D | Transmission Control Solenoid Valve 4 | M5U | Under the vehicle, inside the transmission assembly | *Automatic Transmission Valve Body Components (M5U)* | — |
| Q77E | Transmission Control Solenoid Valve 5 | M5U | Under the vehicle, inside the transmission assembly | *Automatic Transmission Valve Body Components (M5U)* | — |
| Q77F | Transmission Control Solenoid Valve 6 | M5U | Under the vehicle, inside the transmission assembly | *Automatic Transmission Valve Body Components (M5U)* | — |
| Q77G | Transmission Control Solenoid Valve 7 | M5U | Under the vehicle, inside the transmission assembly | *Automatic Transmission Valve Body Components (M5U)* | — |
| Q77H | Transmission Control Solenoid Valve 8 | M5U | Under the vehicle, inside the transmission assembly | *Automatic Transmission Valve Body Components (M5U)* | — |
| Q77J | Transmission Control Solenoid Valve 9 | M5U | Under the vehicle, inside the transmission assembly | *Automatic Transmission Valve Body Components (M5U)* | — |
| R6A | Terminating Resistor - High Speed Bus | — | Under the vehicle, near the left frame rail, above the spare tire, taped in the chassis harness | *Chassis Components (Chassis Cab)* | *R6A Terminating Resistor - High Speed Bus* |
| R12 | Power Take-Off Switch Diode | PTO | In the passenger compartment, behind the middle of the instrument panel | — | — |
| R25 | Hybrid/EV Battery Pre-Charge Resistor | HP5 | part of the Hybrid/EV battery pack | — | — |
| S2 | Transmission Manual Shift Switch | M5U, MW7, MYC or MYD | In the passenger compartment, part of the transmission shift lever | — | — |
| S3 | Transmission Shift Lever | M5U, MW7, MYC or MYD | In the passenger compartment, mounted to the steering column | — | — |

| | | | | | |
|---|---|---|---|---|---|
| S5 | Center Console Compartment Lamp Switch | D07 | In the passenger compartment, under the center console compartment lid | — | *S5 Center Console Compartment Lamp Switch* |
| S12 | Dome Lamp Switch | — | In the passenger compartment, near the center of the headliner, part of the dome lamp | — | *S12 Dome Lamp Switch* |
| S13D | Door Lock Switch - Driver | — | In the passenger compartment, in the driver door handle trim panel | *Driver Door Components* | • *S13D Door Lock Switch - Driver (A31)*<br>• *S13D Door Lock Switch - Driver (-A31)* |
| S13P | Door Lock Switch - Passenger | — | In the passenger compartment, in the passenger door handle trim panel | *Passenger Door Components* | • *S13P Door Lock Switch - Passenger (A31)*<br>• *S13P Door Lock Switch - Passenger (-A31)* |
| S15 | Manual Service Disconnect | HP5 | part of the Hybrid/EV battery pack | — | — |
| S16 | Driver Information Center Switch | — | In the passenger compartment, in the center of the I/P, between the instrument cluster and the air vents | — | — |
| S25 | Garage Door Opener | UG1 | In the passenger compartment, in the overhead console | — | *S25 Garage Door Opener* |
| S30 | Headlamp Switch | — | In the passenger compartment, left of the steering column | — | *S30 Headlamp Switch* |
| S31D | Seat Heating and Cooling Switch - Driver | KA1 or KB6 | In the passenger compartment, on driver side of the HVAC controls | — | *S31D Seat Heating and Cooling Switch - Driver* |
| S31P | Seat Heating and Cooling Switch - Passenger | KA1 or KB6 | In the passenger compartment, on passenger side of the HVAC controls | — | *S31P Seat Heating and Cooling Switch - Passenger* |
| S33 | Horn Switch | — | In the passenger compartment, in the center of the steering wheel, behind the driver side air bag | — | — |
| S39 | Ignition Switch | — | In the passenger compartment, behind the steering wheel, on the right side of the steering column | — | — |
| S40 | Passenger Air Bag Disable Switch | C99 | In the passenger compartment, in the right instrument panel closeout | — | *S40 Passenger Air Bag Disable Switch* |
| S43 | Content Theft Deterrent Sensor Disable Switch | UTU/UTV | In the passenger compartment, overhead, in the overhead console | — | — |
| S47D | Seat Memory Switch - Driver | A45 | In the passenger compartment, on the driver door panel above the driver door switch assembly | — | *S47D Seat Memory Switch - Driver* |
| S48A | Multifunction Switch - Instrument Panel | — | In the passenger compartment, near the center of the instrument panel | — | • *S48A Multifunction Switch - Instrument Panel X1*<br>• *S48A Multifunction Switch - Instrument Panel X2* |
| S51 | Telematics Button Assembly | UE1 | In the passenger compartment, part of the inside rearview mirror | — | — |

| | | | | | |
|---|---|---|---|---|---|
| S52 | Outside Rearview Mirror Switch | DL3, DL8, DPN or DQS | In the passenger compartment, on the driver door trim panel | *Driver Door Components* | • *S52 Outside Rearview Mirror Switch (A45)*<br>• *S52 Outside Rearview Mirror Switch (-A45)* |
| S63 | Roof Beacon Switch | TRW | In the passenger compartment, behind the overhead console, near the top | — | *S63 Roof Beacon Switch* |
| S64D | Seat Adjuster Switch - Driver | — | In the passenger compartment, mounted to the outboard side of the driver seat cushion | *Back of Driver Seat Components* | • *S64D Seat Adjuster Switch - Driver X1*<br>• *S64D Seat Adjuster Switch - Driver X2* |
| S64P | Seat Adjuster Switch - Passenger | — | In the passenger compartment, mounted to the outboard side of the passenger seat cushion | *Front of Passenger Seat Components* | • *S64P Seat Adjuster Switch - Passenger X1*<br>• *S64P Seat Adjuster Switch - Passenger X2* |
| S68 | Sliding Rear Window Switch | A48 | In the passenger compartment, in the overhead console | — | *S68 Sliding Rear Window Switch* |
| S70E | Steering Wheel Controls Switch - Radio Presets | UK3 | In the passenger compartment, on the left rear side of the steering wheel | — | — |
| S70F | Steering Wheel Controls Switch - Radio Volume | UK3 | In the passenger compartment, on the right rear side of the steering wheel | — | — |
| S70L | Steering Wheel Controls Switch - Left | — | In the passenger compartment, on the left side of the steering wheel | — | — |
| S70R | Steering Wheel Controls Switch - Right | UK3 | In the passenger compartment, on the right side of the steering wheel | — | — |
| S72 | Sunroof Switch | CF5 | In the passenger compartment, at the front of the headliner, in the overhead console | — | *S72 Sunroof Switch* |
| S74 | Tow/Haul Mode Switch | M5U, MW7, MYC or MYD | In the passenger compartment, part of the automatic transmission shift lever | — | — |
| S76 | Trailer Brake Control Switch | JL1 | In the passenger compartment, lower left side of the instrument panel | — | *S76 Trailer Brake Control Switch* |
| S77 | Transfer Case Shift Control Switch | NQF or NQH | In the passenger compartment, left side of the instrument panel | — | • *S77 Transfer Case Shift Control Switch (NQG)*<br>• *S77 Transfer Case Shift Control Switch (NQH/NQF)* |
| S77 | Transfer Case Shift Control Switch | NQG | Under the vehicle, on the top of the transfer case | — | • *S77 Transfer Case Shift Control Switch (NQG)*<br>• *S77 Transfer Case Shift Control Switch (NQH/NQF)* |
| S78 | Turn Signal/Multifunction Switch | — | In the passenger compartment, on the left side of the steering column | — | — |
| S79D | Window Switch - Driver | A31 | In the passenger compartment, behind the driver door trim panel, center of the door | *Driver Door Components* | *S79D Window Switch - Driver* |
| S79LR | Window Switch - Left Rear | Extended or Crew Cab | In the passenger compartment, at the center of the left rear door, on the door trim panel | *Left Rear Door Components* | *S79LR Window Switch - Left Rear* |

| | | | | | |
|---|---|---|---|---|---|
| S79P | Window Switch - Passenger | A31 | In the passenger compartment, on the passenger door trim panel, center of the door | *Passenger Door Components* | • *S79P Window Switch - Passenger X1*<br>• *S79P Window Switch - Passenger X2* |
| S79RR | Window Switch - Right Rear | Extended or Crew Cab | In the passenger compartment, on the right rear door trim panel, center of the door | *Right Rear Door Components* | *S79RR Window Switch - Right Rear* |
| S135 | Rollover Protection Disable Switch | C9I | In the passenger compartment, in the left side of the lower glove box | *Rear of Instrument Panel Components* | *S135 Rollover Protection Disable Switch* |
| S148L | Assist Step Kick Switch - Left | BRS | Under the vehicle, along the left frame rail, under the driver door part of the power assist step | — | — |
| S148R | Assist Step Kick Switch - Right | BRS | Under the vehicle, along the right frame rail, under the passenger door part of the power assist step | — | — |
| T1 | Accessory DC/AC Power Inverter Module | KI4 or KI5 | In the instrument panel, right side of the steering column | *Rear of Instrument Panel Components* | *T1 Accessory DC/AC Power Inverter Module (KI5)* |
| T3 | Audio Amplifier | UQA or UQG | In the rear passenger compartment, mounted behind the rear seat, below the rear window | — | • *T3 Audio Amplifier X1 (UQA/UQG+D07)*<br>• *T3 Audio Amplifier X1 (UQA/UQG-D07)*<br>• *T3 Audio Amplifier X2*<br>• *T3 Audio Amplifier X3*<br>• *T3 Audio Amplifier X4* |
| T4G | Cellular Phone, Navigation, and Digital Radio Antenna | — | Outside the vehicle, at the front left of the roof | • *Front of Vehicle (Chevrolet) Components*<br>• *Front of Vehicle (GMC) Components* | — |
| T4H | Digital Radio Antenna | IOB | Outside the vehicle, at the right rear of the hood | — | — |
| T4M | Radio Antenna | — | Outside the vehicle, at the right rear of the hood | • *Front of Vehicle (Chevrolet) Components*<br>• *Front of Vehicle (GMC) Components* | — |
| T4S | Wireless Communication Antenna - Bluetooth | — | Outside the vehicle, at the rear of the right front fender | — | — |
| T8A | Ignition Coil 1 | except L5P | In the engine compartment, at the top of the engine | • *Top of Engine Components (LV3)*<br>• *Left Side of Engine Components (L96)*<br>• *Top of Engine Components (L83/L86/L8B)* | • *T8A Ignition Coil 1 (L96/LC8)*<br>• *T8A Ignition Coil 1 (LV3)* |
| T8B | Ignition Coil 2 | except L5P | In the engine compartment, at the top of the engine | • *Top of Engine Components (LV3)*<br>• *Top of Engine Components (L83/L86/L8B)*<br>• *Right Side of Engine Components (L96)* | *T8B Ignition Coil 2 (LV3)* |

| | | | | | |
|---|---|---|---|---|---|
| T8C | Ignition Coil 3 | except L5P | In the engine compartment, at the top of the engine | • *Left Side of Engine Components (L96)*<br>• *Top of Engine Components (L83/L86/L8B)*<br>• *Top of Engine Components (LV3)* | • *T8C Ignition Coil 3 (L96/LC8)*<br>• *T8C Ignition Coil 3 (LV3)* |
| T8D | Ignition Coil 4 | except L5P | In the engine compartment, at the top of the engine | • *Top of Engine Components (LV3)*<br>• *Top of Engine Components (L83/L86/L8B)*<br>• *Right Side of Engine Components (L96)* | *T8D Ignition Coil 4 (LV3)* |
| T8E | Ignition Coil 5 | except L5P | In the engine compartment, at the top of the engine | • *Left Side of Engine Components (L96)*<br>• *Top of Engine Components (L83/L86/L8B)*<br>• *Top of Engine Components (LV3)* | • *T8E Ignition Coil 5 (L96/LC8)*<br>• *T8E Ignition Coil 5 (LV3)* |
| T8F | Ignition Coil 6 | except L5P | In the engine compartment, at the top of the engine | • *Top of Engine Components (LV3)*<br>• *Top of Engine Components (L83/L86/L8B)*<br>• *Right Side of Engine Components (L96)* | *T8F Ignition Coil 6 (LV3)* |
| T8G | Ignition Coil 7 | L83, L86, L96 or LC8 | In the engine compartment, at the top of the engine | • *Left Side of Engine Components (L96)*<br>• *Top of Engine Components (L83/L86/L8B)* | *T8G Ignition Coil 7 (L96/LC8)* |
| T8H | Ignition Coil 8 | L83, L86, L96 or LC8 | In the engine compartment, at the top of the engine | • *Right Side of Engine Components (L96)*<br>• *Top of Engine Components (L83/L86/L8B)* | — |
| T12 | Automatic Transmission Assembly | M5U, MW7, MYC or MYD | Under the vehicle, mounted to the rear of the engine | — | — |
| T15 | Navigation Antenna Signal Splitter | IO6 with UE1 | In the passenger compartment, behind the instrument panel | — | — |
| T22 | Mobile Device Wireless Charger Module | K4C | In the passenger compartment, forward of center, in the floor console bin lid. | — | — |
| W1 | Blunt Cut - Camper Trailer Provision | UY2 | Under the rear of the vehicle | — | — |
| W11 | Blunt Cut - Roof Beacon Provision | TRW | In the passenger compartment, above the headliner | — | — |
| W24 | Blunt Cut - Trailer Brakes Provision | Z82 with E29 or Z82 without JL1 | In the passenger compartment, under left side of the instrument panel | — | — |
| X21 | Manual Service Disconnect Receptacle | HP5 | part of the Hybrid/EV battery pack | *Hybrid/EV Battery Pack (1 of 3)* | — |

| | | | | | |
|---|---|---|---|---|---|
| X50A | Fuse Block - Underhood | — | In the engine compartment, top left near the inner fender | • *Left Side of Engine Compartment Components (except L5P)*<br>• *Left Side of Engine Compartment Components (L5P)*<br>• *Engine Compartment Left Harness Routing*<br>• *Chassis Harness Routing* | Electrical Center Identification Views |
| X50D | Fuse Block - Battery | — | In the engine compartment, on top of the battery | — | Electrical Center Identification Views |
| X50E | Fuse Block - Battery Auxiliary | K4B, K4D or L5P | In the engine compartment, on top of the auxiliary battery | — | Electrical Center Identification Views |
| X51L | Fuse Block - Instrument Panel Left | — | In the passenger compartment, left side of the instrument panel, behind side trim panel | *Passenger Compartment Left Harness Routing* | Electrical Center Identification Views |
| X51R | Fuse Block - Instrument Panel Right | — | In the passenger compartment, right side of the instrument panel, behind side trim panel | • *Passenger Compartment Left Harness Routing*<br>• *Passenger Compartment Right Harness Routing* | Electrical Center Identification Views |
| X55J | Fuse Holder - Generator | KHB or KW5 | In the engine compartment, at the left front of the engine | — | Electrical Center Identification Views |
| X55VA | Fuse Holder 1 - Alternative Fuel | LC8 | In the engine compartment, at the left front, mounted to the CGM module bracket | — | Electrical Center Identification Views |
| X55VB | Fuse Holder 2 - Alternative Fuel | LC8 | In the engine compartment, at the left front, mounted to the CGM module bracket | — | Electrical Center Identification Views |
| X61A | Junction Block - Instrument Panel | except E29 | In the passenger compartment, under the instrument panel, left of the brake pedal | *Passenger Compartment Left Harness Routing* | Electrical Center Identification Views |
| X80D | Accessory Power Receptacle - Center Console Compartment | — | In the passenger compartment, between the driver and passenger seat, in the center console | — | • *X80D Accessory Power Receptacle - Center Console Compartment (-(AE7/AZ3/B3F))*<br>• *X80D Accessory Power Receptacle - Center Console Compartment (AE7/AZ3/B3F)* |
| X80E | Accessory Power Receptacle - Center Seat | except D07 | In the passenger compartment, at the rear of the center console | — | *X80E Accessory Power Receptacle - Center Seat* |
| X80G | Accessory Power Receptacle - Instrument Panel | except D07 | In the passenger compartment, on top of the floor console, below the info display on the center stack | — | *X80G Accessory Power Receptacle - Instrument Panel* |
| X80J | Accessory Power Receptacle - Instrument Panel 1 | D07 | In the passenger compartment, at the left center of the instrument panel | *Rear of Instrument Panel Components* | *X80J Accessory Power Receptacle - Instrument Panel 1* |
| X80K | Accessory Power Receptacle - Instrument Panel 2 | D07 | In the passenger compartment, at the right center of the instrument panel | — | *X80K Accessory Power Receptacle - Instrument Panel 2* |
| X80L | Accessory Power Receptacle - Center Console Rear | D07 | In the passenger compartment, at the rear of the floor center console | — | *X80L Accessory Power Receptacle - Center Console Rear* |
| X81B | Accessory Power Receptacle - 220V AC | KI5 | In the passenger compartment, right front of the center console storage bin | — | • *X81B Accessory Power Receptacle - 220V AC X1*<br>• *X81B Accessory Power Receptacle - 220V AC X2* |

| | | | | | |
|---|---|---|---|---|---|
| X81 | Accessory Power Receptacle - 110V AC | KI4 | In the passenger compartment, right front of the center console storage bin | *Rear of Instrument Panel Components* | • *X81 Accessory Power Receptacle - 110V AC X1*<br>• *X81 Accessory Power Receptacle - 110V AC X2* |
| X82 | Audio/Video Input Adapter | U42 | In the passenger compartment, at rear of the center console | — | *X82 Audio/Video Input Adapter* |
| X83 | Auxiliary Audio Input | — | In the passenger compartment, in the center console storage compartment | — | • *X83 Auxiliary Audio Input (A31)*<br>• *X83 Auxiliary Audio Input (AZ3/AE7)*<br>• *X83 Auxiliary Audio Input (D07)* |
| X84 | Data Link Connector | — | In the passenger compartment, at the bottom of the driver side of the instrument panel | — | *X84 Data Link Connector* |
| X85 | Steering Wheel Air Bag Coil | — | In the passenger compartment, behind the steering wheel | — | *X85 Steering Wheel Air Bag Coil* |
| X88 | Trailer Connector | Z82 | On the vehicle exterior, at the rear of the vehicle, left of the license plate | *Rear of Vehicle Components* | • *X88 Trailer Connector (8S3)*<br>• *X88 Trailer Connector (UY2)*<br>• *X88 Trailer Connector (-UY2-8S3)* |
| X92 | USB Receptacle | — | In the passenger compartment, left front of the center console storage bin | — | *X92 USB Receptacle* |
| X96 | Alternative Fuel System Data Connector | LC8 | In the passenger compartment, at the bottom of the driver side of the instrument panel, clipped to the Data Link Connector mount | — | — |
| X100 | Front Bumper Harness To Forward Lamp Harness (16 Cavities) | T3U or UD5 | In the engine compartment, near the center of the lower radiator support | • *Front Bumper Harness Routing*<br>• *Engine Compartment Right Harness Routing* | • *X100 Forward Lamp Harness to Front Bumper Harness (X88+UD5)*<br>• *X100 Forward Lamp Harness to Front Bumper Harness (X88-UD5)*<br>• *X100 Forward Lamp Harness to Front Bumper Harness (Z88+UD5)*<br>• *X100 Forward Lamp Harness to Front Bumper Harness (Z88-UD5)* |
| X101 | Engine Chassis Harness to Engine Harness (30 Cavities) | L5P | In the engine compartment, at the top of the engine | • *Left Side of Engine Harness Routing (L5P)*<br>• *Engine Compartment Left Harness Routing* | *X101 Engine Harness to Engine Chassis Harness (L5P)* |
| X102 | Engine Harness To Engine Cooling Fan Jumper Harness (5 Cavities) | L5P | In the engine compartment, at the lower left of the cooling fan housing | • *Left Side of Engine Harness Routing (L5P)*<br>• *Engine Compartment Left Harness Routing* | — |
| X105 | Engine Harness To Forward Lamp Harness (6 Cavities) | 1500 | In the engine compartment, near lower left of the engine block, rear of the battery carrier | • *Forward Lamp Harness Routing - Left Engine Compartment (HP5)*<br>• *Engine Harness Routing - Left Front (L8B)* | • *X105 Engine Harness to Forward Lamp Harness (L8B)*<br>• *X105 Engine Harness to Forward Lamp Harness (LV3/LV1)* |

| | | | | | |
|---|---|---|---|---|---|
| X110 | Forward Lamp Harness to Headlamp - Left Harness (8 Cavities) | — | In the engine compartment, at the rear of the left headlamp assembly | *Forward Lamp Harness Routing - Right Engine Compartment (HP5)* | • *X110 Forward Lamp Harness to Front Bumper Harness (Heavy Duty)*<br>• *X110 Forward Lamp Harness to Front Bumper Harness (Light Duty)* |
| X111 | Engine Harness To Front Axle Harness (4 Cavities) | NQF, NQG or NQH | Under the vehicle, near the front axle | • *Engine Compartment Left Harness Routing*<br>• *Left Side of Engine Harness Routing (L5P)*<br>• *Engine Harness Routing - Left Front (L8B)* | *X111 Front Axle Harness to Engine Harness* |
| X113 | Engine Jumper Harness to Engine Harness (12 Cavities) | L5P | In the engine compartment, at the top of the engine | — | *X113 Engine Chassis Harness to Engine Jumper Harness (L5P)* |
| X115 | Engine Harness to Body Harness (48 Cavities) | — | In the front of the engine compartment, near the upper left of the radiator support | • *Left Side of Engine Harness Routing (L5P)*<br>• *Engine Compartment Left Harness Routing*<br>• *Engine Harness Routing - Left Front (L8B)* | *X115 Engine Harness to Body Harness* |
| X116 | Engine Harness to Body Harness | HP5 | In the front of the engine compartment, near the upper left of the radiator support | *Engine Harness Routing - Left Front (L8B)* | *X116 Engine Harness to Body Harness* |
| X120 | Forward Lamp Harness to Headlamp - Right Harness (8 Cavities) | — | In the engine compartment, at the rear of the right headlamp assembly | — | • *X120 Forward Lamp Harness to Front Bumper Harness (Heavy Duty)*<br>• *X120 Forward Lamp Harness to Front Bumper Harness (Light Duty)* |
| X125 | Engine Harness To Chassis Harness (20 Cavities) | — | Under the vehicle, on the top left of the frame rail, near the left front body mount | • *Engine Compartment Left Harness Routing*<br>• *Left Side of Engine Harness Routing (L5P)*<br>• *Chassis Cab Harness Routing*<br>• *Chassis Harness Routing* | • *X125 Engine Harness to Chassis Harness (L5P)*<br>• *X125 Engine Harness to Chassis Harness (L96/LC8/LV3/LV1)* |
| X132 | Aero Shutter Jumper Harness to Forward Lamp Harness | HP5 | At the front of the vehicle, at center, behind upper grille at hood latch | *Forward Lamp Harness Routing - Right Engine Compartment (HP5)* | *X132 Aero Shutter Jumper Harness to Forward Lamp Harness* |
| X133 | Battery Harness to Power Steering Jumper Harness (2 Cavities) | 1500 | Under the vehicle, clipped to the steering gear | — | — |
| X134 | Chassis Harness to Power Steering Jumper Harness (12 Cavities) | 1500 | Under the vehicle, clipped to the steering gear | *Chassis Harness Routing* | *X134 Chassis Harness to Ignition Coil Harness* |
| X135 | Fuel Pressure Sensor Jumper Harness to Engine Harness (3 Cavities) | L5P | In the engine compartment, at the top rear of the engine | — | — |
| X138 | Chassis Harness To Body Harness (40 Cavities) | — | In the rear of the engine compartment, near the rear of the under hood fuse block | • *Chassis Cab Harness Routing*<br>• *Chassis Harness Routing* | *X138 Chassis Harness to Body Harness* |

| | | | | | |
|---|---|---|---|---|---|
| X150 | Body Harness To Forward Lamp Harness (23 Cavities) | — | In the engine compartment, above the right front wheel well | • *Engine Compartment Right Harness Routing*<br>• *Forward Lamp Harness Routing - Right Engine Compartment (HP5)* | *X150 Body Harness to Forward Lamp Harness (Extended Cab)* |
| X154 | Engine Harness to Camshaft Position Sensor Jumper Harness (8 Cavities) | 1500 | In the engine compartment, near the fuel rail | *Engine Harness Routing - Left Front (L8B)* | *X154 Engine Harness to Camshaft Position Sensor Jumper Harness* |
| X158 | Auxiliary Battery to Engine Harness (6 Cavities) | K4B or K4D | At the left front of the engine compartment | — | *X158 Auxilary Battery Harness to Engine Harness* |
| X159 | Engine Harness to Camshaft Position Sensor Jumper Harness (5 Cavities) | L96 or LC8 | In the engine compartment, near the fuel rail | — | *X159 Engine Harness to Camshaft Position Sensor Jumper Harness* |
| X160 | Engine Harness to Odd Fuel Injector Harness (12 Cavities) | 1500 | In the engine compartment, rear of the engine near the top center | *Engine Harness Routing - Right Rear (L8B)* | *X160 Engine Harness to Odd Fuel Injector Harness* |
| X161 | Engine Harness to Even Fuel Injector Harness (12 Cavities) | 1500 | In the engine compartment, rear of the engine near the top right | *Engine Harness Routing - Right Rear (L8B)* | *X161 Engine Harness to Even Fuel Injector Harness* |
| X170 | Engine Harness to Ignition Coil (Odd) Harness (8 Cavities) | L96 or LC8 | On the engine, near the odd ignition coils | — | *X170 Engine Harness to Ignition Coil Odd Jumper Harness (L96 (ODD BANK))* |
| X171 | Engine Harness to Ignition Coil (Even) Harness (8 Cavities) | L96 or LC8 | On the engine, near the even ignition coils | — | *X171 Engine Harness to Ignition Coil Even Jumper Harness (L96 (EVEN BANK))* |
| X173 | Camshaft Jumper to Oil Pressure Control Valve (2 Cavities) | 1500 | In the engine compartment, at the front of the engine | — | — |
| X175 | Engine Harness to Transmission Harness (36 Cavities) | M5U/M5X | Under the vehicle, at the rear of the transmission assembly | *Engine Harness Routing - Right Rear (L8B)* | *X175 Engine Harness to Transmission Harness (MW7)* |
| X175 | Engine Harness to Transmission Harness (23 Cavities) | L5P | Under the vehicle, at the rear of the transmission assembly | *Engine Harness Routing - Right Rear (L8B)* | *X175 Engine Harness to Transmission Harness (MW7)* |
| X176 | Transmission Harness to Valve Body Harness (22 Cavities) | M5U | Under the vehicle, inside the transmission assembly | — | — |
| X177 | Transmission Harness to Speed Sensor Harness (22 Cavities) | M5U | In the engine compartment, at the right front of the engine compartment, near the mass airflow sensor | — | — |
| X178 | CNG Rear Harness to CNG Front Harness (16 Cavities) | LC8 | In the engine compartment, to the left of the engine, below the fuse block, attached to the power steering hoses | — | — |
| X179 | Engine Harness to CNG Front Harness (5 Cavities) | LC8 | In the engine compartment, at the right front of the engine compartment, near the mass airflow sensor | — | — |
| X181 | Engine Harness to CNG Injector Harness (2 Cavities) | LC8 | In the engine compartment, near cylinder 1 fuel injector | — | — |
| X182 | Engine Harness to CNG Injector Harness (2 Cavities) | LC8 | In the engine compartment, near cylinder 2 fuel injector | — | — |
| X183 | Engine Harness to CNG Injector Harness (2 Cavities) | LC8 | In the engine compartment, near cylinder 3 fuel injector | — | — |

| | | | | | |
|---|---|---|---|---|---|
| X184 | Engine Harness to CNG Injector Harness (2 Cavities) | LC8 | In the engine compartment, near cylinder 4 fuel injector | — | — |
| X185 | Engine Harness to CNG Injector Harness (2 Cavities) | LC8 | In the engine compartment, near cylinder 5 fuel injector | — | — |
| X186 | Engine Harness to CNG Injector Harness (2 Cavities) | LC8 | In the engine compartment, near cylinder 6 fuel injector | — | — |
| X187 | Engine Harness to CNG Injector Harness (2 Cavities) | LC8 | In the engine compartment, near cylinder 7 fuel injector | — | — |
| X188 | Engine Harness to CNG Injector Harness (2 Cavities) | LC8 | In the engine compartment, near cylinder 8 fuel injector | — | — |
| X189 | CNG Injector Harness to CNG Front Harness (20 Cavities) | LC8 | In the engine compartment, to the left of the engine | — | — |
| X190 | CNG Front Harness to CNG Injector Harness (20 Cavities) | LC8 | In the engine compartment, to the left of the engine | — | — |
| X191 | Engine Harness to Power Take-Off Jumper Harness (16 Cavities) | PTO | At the right rear of the engine compartment, near the frame | — | *X191 Engine Harness to Power Take-Off Jumper Harness (L5P+PTO)* |
| X199 | CNG Front Harness to CNG Instrument Panel Harness (12 Cavities) | LC8 | In the engine compartment, to the left of the engine | — | — |
| X201 | Steering Column Harness to Instrument Panel Harness (42 Cavities) | except E29 | In the passenger compartment, behind the left side of the instrument panel, near the steering column | — | • *X201 Steering Column Harness to Instrument Panel Harness (E29)*<br>• *X201 Steering Column Harness to Instrument Panel Harness (-E29)* |
| X201 | Steering Column Harness to Instrument Panel Harness (12 Cavities) | E29 | In the passenger compartment, behind the left side of the instrument panel, near the steering column | — | • *X201 Steering Column Harness to Instrument Panel Harness (E29)*<br>• *X201 Steering Column Harness to Instrument Panel Harness (-E29)* |
| X205 | Instrument Panel Harness to Passenger Air Bag Jumper Harness (4 Cavities) | — | In the passenger compartment, behind the right side of the instrument panel near the center | — | *X205 Instrument Panel Harness to Instrument Panel Extension Harness* |
| X206 | Body Harness To Brake Clutch Jumper Harness (16 Cavities) | except E29 | In the passenger compartment, left side of the instrument panel | *Passenger Compartment Left Harness Routing* | *X206 Headliner Harness to Body Harness* |
| X206 | Brake Clutch Jumper Harness to Body Harness (16 Cavities) | E29 | In the passenger compartment, left side of the instrument panel | *Passenger Compartment Left Harness Routing* | *X206 Headliner Harness to Body Harness* |
| X210 | Instrument Panel Harness COAX to Antenna Jumper Harness COAX (1 Cavity) | U2K or U2M | In the passenger compartment, between the instrument panel harness and the A-pillar | — | — |
| X211 | Instrument Panel Harness COAX to Antenna Jumper Harness COAX (1 Cavity) | IO6 without UE1 | In the passenger compartment, at the top right of the instrument panel, under the defroster duct trim | — | — |
| X212 | Antenna Jumper Harness COAX to Instrument Panel Harness COAX (1 Cavity) | UE1 with CV3 | In the passenger compartment, at the top right of the instrument panel, under the defroster duct trim | — | — |
| X215 | HVAC Harness to Instrument Panel Harness (14 Cavities) | — | In the passenger compartment, behind the upper right side of the instrument panel | *HVAC Assembly Harness Routing* | *X215 POA HVAC Harness to Instrument Panel Harness* |

| | | | | | |
|---|---|---|---|---|---|
| X216 | Body Harness To HVAC Harness (10 Cavities) | — | In the passenger compartment, behind the lower right side of the instrument panel | - *Passenger Compartment Right Harness Routing*<br>- *HVAC Assembly Harness Routing* | *X216 Body Harness to HVAC Harness* |
| X217 | Body Harness To HVAC Harness (2 Cavities) | — | In the passenger compartment, behind the lower right side of the instrument panel | - *Passenger Compartment Right Harness Routing*<br>- *HVAC Assembly Harness Routing* | *X217 Body Harness to HVAC Harness* |
| X222 | Instrument Panel Harness COAX to Antenna Jumper Harness COAX (1 Cavity) | (IO6) with (VV4) or (UE1 with CV3) | In the passenger compartment, between the instrument panel harness and the A-pillar | — | — |
| X222 | Instrument Panel Harness COAX to Antenna Jumper Harness COAX (2 Cavities) | (IO3 or IO5) with (VV4) or (UE1 with CV3) | In the passenger compartment, between the instrument panel harness and the A-pillar | — | — |
| X225 | Body Harness To Instrument Panel Harness (42 Cavities) | — | In the passenger compartment, behind the lower left side of the instrument panel | *Passenger Compartment Left Harness Routing* | - *X225 Body Harness to Instrument Panel Harness (Extended Cab/Crew Cab)*<br>- *X225 Body Harness to Instrument Panel Harness (Regular Cab)* |
| X238 | Center Console Harness USB to Instrument Panel Harness USB | U42 | 2-Way USB connector, in the passenger compartment, at the front of the center console | — | — |
| X241 | Instrument Panel Harness to Power Inverter Module Jumper (12 Cavities) | KI5 | In the passenger compartment, behind the middle of the instrument panel | — | *X241 Instrument Panel Harness to Instrument Panel Extension Harness* |
| X245 | Antenna Jumper Harness COAX to Antenna Jumper Harness COAX (1 Cavity) | — | In the passenger compartment, at the top right of the instrument panel, under the defroster duct trim | — | — |
| X275 | Instrument Panel Harness to Body Harness (42 Cavities) | — | In the passenger compartment, behind the lower right side of the instrument panel | *Passenger Compartment Right Harness Routing* | *X275 Instrument Panel Harness to Body Harness* |
| X300 | Instrument Panel Harness to Center Console Harness (42 Cavities) | D07 | In the passenger compartment, behind the lower center of the instrument panel | *Floor Console Harness Routing* | *X300 Instrument Panel Harness to Floor Console Harness* |
| X301 | Body Harness USB to Instrumental Panel Harness USB | except D07 | In the passenger compartment, at the base of the right A-pillar behind the trim panel | — | — |
| X302 | Power Mat Jumper Harness to Floor Console Harness (3 Cavities) | K4C | In the passenger compartment, forward of center, in the floor console | — | *X302 Power Mat Jumper Harness to Floor Console Harness* |
| X305 | Instrument Panel Harness to Headliner Harness (12 Cavities) | — | In the passenger compartment, behind the upper left side of the instrument panel, near the instrument cluster | — | - *X305 Instrument Panel Harness to Headliner Harness (LUX+Console)*<br>- *X305 Instrument Panel Harness to Headliner Harness (LUX-Console)* |
| X309 | Center Console Harness USB to Instrument Panel Harness USB | D07 without U42 | Between the instrument panel harness and the front console | — | — |

| | | | | | |
|---|---|---|---|---|---|
| X310 | Driver Seat Cushion Harness to Body Harness (48 Cavities) | — | In the passenger compartment, under the passenger seat | • *Passenger Compartment Right Harness Routing*<br>• *Passenger Compartment Left Harness Routing*<br>• *Bottom of Driver Seat Harness Routing* | • *X310 Driver Seat Cushion Harness to Body Harness (AG1)*<br>• *X310 Driver Seat Cushion Harness to Body Harness (-AG1)* |
| X311 | Driver Seat Back Harness to Driver Seat Cushion Harness (6 Cavities) | — | In the passenger compartment, part of the driver seat assembly | • *Back of Driver Seat Harness Routing*<br>• *Bottom of Driver Seat Harness Routing* | *X311 Driver Seat Back Harness to Driver Seat Cushion Harness* |
| X312 | Driver Seat Back Harness to Driver Seat Cushion Harness (16 Cavities) | — | In the passenger compartment, part of the driver seat assembly | • *Back of Driver Seat Harness Routing*<br>• *Bottom of Driver Seat Harness Routing* | • *X312 Driver Seat Back Harness to Driver Seat Cushion Harness (AG1)*<br>• *X312 Driver Seat Back Harness to Driver Seat Cushion Harness (-AG1)* |
| X313 | Body Harness USB to Center Seat Harness USB | — | In the passenger compartment, under the inboard side of the passenger seat, USB cable | — | — |
| X314 | Center Seat Harness to Body Harness (23 Cavities) | except D07 | In the passenger compartment, under the driver seat | • *Passenger Compartment Right Harness Routing*<br>• *Passenger Compartment Left Harness Routing* | *X314 Center Seat Harness to Body Harness* |
| X315 | Headliner Harness to Body Harness (16 Cavities) | — | In the passenger compartment, near the middle of the left A-pillar | *Passenger Compartment Left Harness Routing* | • *X315 Body Harness to Brake Clutch Harness (E29)*<br>• *X315 Body Harness to Brake Clutch Harness (-E29)* |
| X316 | Headliner Harness to Overhead Console Harness (26 Cavities) | — | In the passenger compartment, in the headliner, near the over head console | — | *X316 Headliner Harness to Overhead Console Harness* |
| X318 | Overhead Console Harness to Headliner Harness (10 Cavities) | CF5 or TRW | In the passenger compartment, in the headliner, between near the A-pillar | — | *X318 Sunroof Jumper Harness to Overhead Console Harness* |
| X319 | Overhead Console Harness to Headliner Harness (2 Cavities) | CF5 or TRW | In the passenger compartment, in the headliner, between near the A-pillar | — | *X319 Overhead Console Harness to RH A Pillar Harness* |
| X320 | Passenger Seat Cushion Harness to Body Harness (48 Cavities) | — | In the passenger compartment, under the passenger seat | • *Bottom of Passenger Seat Harness Routing*<br>• *Passenger Compartment Left Harness Routing* | • *X320 Passenger Seat Cushion Harness to Body Harness (Extended Cab/Crew Cab)*<br>• *X320 Passenger Seat Cushion Harness to Body Harness (Regular Cab)* |
| X321 | Passenger Seat Back Harness to Passenger Seat Cushion Harness (6 Cavities) | — | In the passenger compartment, part of the passenger seat assembly | • *Back of Passenger Seat Harness Routing*<br>• *Bottom of Passenger Seat Harness Routing* | *X321 Passenger Seat Back Harness to Passenger Seat Cushion Harness* |
| X322 | Passenger Seat Back Harness to Passenger Seat Cushion Harness (6 Cavities) | — | In the passenger compartment, part of the passenger seat assembly | • *Back of Passenger Seat Harness Routing*<br>• *Bottom of Passenger Seat Harness Routing* | *X322 Passenger Seat Back Harness to Passenger Seat Cushion Harness* |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| X345 | Engine Harness to Reductant Tank Harness (24 Cavities) | L5P | At the right rear of the engine compartment, near the frame | — | — |
| X350 | Chassis Harness to CNG Rear Harness (4 Cavities) | LC8 | Under the vehicle, at the top of the fuel tank, near the fuel pump and level sensor assembly | *Chassis Cab Harness Routing* | — |
| X351 | Instrument Panel Harness LVDS to Headliner Harness LVDS (1 Cavities) | U42 | In the passenger compartment, behind the left Instrument Panel end cap, near the Instrument Panel Fuse Block | *Chassis Cab Harness Routing* | — |
| X363 | High Voltage Battery Monitoring Harness to Body Harness | HP5 | At the front of the vehicle, at center, behind upper grille at hood latch | *High Voltage Battery Monitoring Harness Routing (HP5)* | *X363 High Voltage Battery Monitoring Harness to Body Harness* |
| X380 | Body Harness to Roof Rail Air Bag Jumper Harness (2 Cavities) | — | In the passenger compartment, behind the left C-pillar, near the headliner | — | *X380 Body Harness to Roof Rail Air Bag Jumper Harness* |
| X390 | Body Harness to Roof Rail Air Bag Jumper Harness (2 Cavities) | — | In the passenger compartment, behind the right C-pillar, near the headliner | *Passenger Compartment Right Harness Routing* | *X390 Body Harness to Roof Rail Air Bag Jumper Harness* |
| X400 | Accessory Cargo Kit Harness to Chassis Harness | — | At the rear of the vehicle, left corner, underneath, on left frame rail | — | *X400 Accessory Cargo Kit Harness to Chassis Harness* |
| X416 | Rear Bumper Harness to Rear Clearance Lamps (Left) Jumper Harness (2 Cavities) | DRW except ZW9 | At the rear of the vehicle, behind the left side of the rear fascia | *Rear Bumper Harness Routing* | *X416 Rear Bumper Harness to Rear Clearance Lamps Harness* |
| X416 | License Lamp Jumper Harness to Rear Clearance Lamps (Left) Jumper Harness (2 Cavities) | DRW with ZW9 | At the rear of the vehicle, behind the left side of the rear fascia | *Rear Bumper Harness Routing* | *X416 Rear Bumper Harness to Rear Clearance Lamps Harness* |
| X417 | Rear Bumper Harness to Rear Clearance Lamps (Right) Jumper Harness (2 Cavities) | DRW except ZW9 | At the rear of the vehicle, behind the left side of the rear fascia | *Rear Bumper Harness Routing* | *X417 Rear Bumper Harness to Rear Clearance Lamps Harness* |
| X417 | License Lamp Jumper Harness to Rear Clearance Lamps (Right) Jumper Harness (2 Cavities) | DRW with ZW9 | At the rear of the vehicle, behind the left side of the rear fascia | *Rear Bumper Harness Routing* | *X417 Rear Bumper Harness to Rear Clearance Lamps Harness* |
| X451 | Chassis Harness to CNG Rear Harness (2 Cavities) | LC8 | Under the rear of the vehicle, above the spare tire | — | — |
| X500 | Driver Door Harness to Body Harness (41 Cavities) | — | In the passenger compartment, behind the left side of the instrument panel | • *Driver Door Harness Routing*<br>• *Doors (Regular Cab with Manual Windows) Harness Routing* | *X500 Driver Door Harness to Body Harness* |
| X505 | Driver Door Harness To Driver Door Trim Harness (48 Cavities) | A31 | In the driver door, behind the driver door panel | *Driver Door Harness Routing* | *X505 Driver Door Harness to Driver Door Trim Harness* |
| X506 | Driver Door Trim Harness to Driver Door Harness (8 Cavities) | without A31 | In the driver door, behind the driver door panel | *Doors (Regular Cab with Manual Windows) Harness Routing* | *X506 Driver Door Trim Harness to Driver Door Harness* |
| X510 | Outside Rearview Mirror to Driver Door Harness (8 Cavities) | DL3, DL8, DPN or DQS | In the driver door, behind the driver door panel, near the A-pillar | *Driver Door Harness Routing* | *X510 Driver Door Trim Harness to Driver Door Harness* |
| X600 | Passenger Door Harness to Body Harness (41 Cavities) | — | In the passenger compartment, behind the right side of the instrument panel | • *Passenger Door Harness Routing*<br>• *Passenger Compartment Right Harness Routing*<br>• *Passenger Compartment Left Harness Routing*<br>• *Doors (Regular Cab with Manual Windows) Harness Routing* | *X600 Passenger Door Harness to Body Harness* |

| | | | | | |
|---|---|---|---|---|---|
| X605 | Passenger Door Harness to Passenger Door Trim Harness (48 Cavities) | A31 | In the passenger door, behind the passenger door panel | *Passenger Door Harness Routing* | *X605 Passenger Door Harness to Passenger Door Trim Harness* |
| X606 | Passenger Door Trim Harness to Passenger Door Harness (8 Cavities) | without A31 | In the passenger door, behind the passenger door panel | *Doors (Regular Cab with Manual Windows) Harness Routing* | *X606 Passenger Door Trim Harness to Passenger Door Harness* |
| X610 | Outside Rearview Mirror to Passenger Door Harness (18 Cavities) | DL3, DL8, DPN or DQS | In the passenger door, behind the passenger door panel, near the A-pillar | *Passenger Door Harness Routing* | *X610 Passenger Door Trim Harness to Passenger Door Harness* |
| X611 | Outside Rearview Mirror to Passenger Door Harness (2 Cavities) | L5P with DE2 or DF2 | In the passenger door, behind the passenger door panel, near the A-pillar | — | *X611 Outside Rear View Mirror Harness to Passenger Door Harness* |
| X700 | Left Rear Door Harness to Body Harness (20 Cavities) | Extended or Crew Cab | In the passenger compartment, behind the left B-pillar, near the middle | • *Rear Doors Harness Routing*<br>• *Passenger Compartment Left Harness Routing* | *X700 Left Rear Door Harness to Body Harness* |
| X800 | Right Rear Door Harness to Body Harness (20 Cavities) | Extended or Crew Cab | In the passenger compartment, behind the right B-pillar, near the middle | • *Passenger Compartment Right Harness Routing*<br>• *Rear Doors Harness Routing* | *X800 Right Rear Door Harness to Body Harness* |
| X900 | Tailgate Harness to Chassis Harness (8 Cavities) | — | On the vehicle underbody, behind rear bumper, near the left frame rail | — | *X900 Tailgate Harness to Chassis Harness* |
| X901 | Rear Object Alarm Sensor Harness to Chassis Harness (16 Cavities) | — | On the vehicle underbody, behind rear bumper, near the left frame rail | — | *X901 Rear Bumper Harness to Chassis Harness* |
| X950 | Chassis Harness to Backup Alarm Jumper (7 Cavities) | 8S3 or UY2 | Under the rear of the vehicle, above the spare tire | *Chassis Jumper Harness Routing (UY2)* | • *X950 Chassis Harness to Backup Alarm Harness (8S3)*<br>• *X950 Chassis Harness to Camper Harness (UY2)* |
| G100 | Auxiliary Battery Cable | K4B or K4D | In the engine compartment, at left front of engine | *G100, G110 and G120 (L96 or LC8)* | — |
| G101 | Forward Lamp Harness | — | Under the vehicle, mounted to the left frame rail, in front of the lower left radiator support | *G101* | — |
| G102 | Forward Lamp Harness | — | Under the vehicle, mounted to the right frame rail, in front of the lower right radiator support | *G102* | — |
| G103 | Battery Cable | LV1, LV3, L96 or LC8 | In the engine compartment, at right rear of engine | • *G103 (L96 or LC8)*<br>• *G103 and G125 (L83/L86/L8B)*<br>• *G103, G130 and G140 (LV3)* | — |
| G103 | Battery Cable | L83 or L86 | In the engine compartment, at right side of engine | • *G103 (L96 or LC8)*<br>• *G103 and G125 (L83/L86/L8B)*<br>• *G103, G130 and G140 (LV3)* | — |
| G109 | Engine Jumper Harness | L5P | In the engine compartment, at left front of engine, rear of G110, near oil pan | *G109 and G110 (L5P)* | — |

| | | | | | |
|---|---|---|---|---|---|
| G110 | Engine Harness | 1500 | In the engine compartment, on left front middle of the engine block | • *G110 (1500)*<br>• *G109 and G110 (L5P)*<br>• *G100, G110 and G120 (L96 or LC8)* | — |
| G110 | Engine Harness | L96 or LC8 | In the engine compartment, on left front rear of power steering pump | • *G110 (1500)*<br>• *G109 and G110 (L5P)*<br>• *G100, G110 and G120 (L96 or LC8)* | — |
| G110 | Auxiliary Battery and Engine Harnesses | L5P | In the engine compartment, at left front of engine, forward of G109, near oil pan | • *G110 (1500)*<br>• *G109 and G110 (L5P)*<br>• *G100, G110 and G120 (L96 or LC8)* | — |
| G111 | CNG Main Harness | LC8 | In the engine compartment, at the left rear, bolted to the left side of the bulkhead | — | — |
| G120 | Engine Harness | L96 or LC8 | In the engine compartment, at the right front of engine | • *G100, G110 and G120 (L96 or LC8)*<br>• *G120 and G122 (L5P)* | — |
| G120 | Battery and Engine Chassis Harnesses | L5P | In the engine compartment, on right front of engine, near oil pan, below G122 | • *G100, G110 and G120 (L96 or LC8)*<br>• *G120 and G122 (L5P)* | — |
| G121 | Chassis Harness | — | Under the vehicle at driver door on body mount frame post | *G121* | — |
| G122 | Engine Harness | L5P | In the engine compartment, on right front of engine, near oil pan, above G120 | *G120 and G122 (L5P)* | — |
| G123 | Steering Wheel Jumper Harness | NV8 | In the passenger compartment, on the steering column near the base of the shifter | — | — |
| G125 | Power Steering Jumper | 1500 | In the engine compartment, on the right side front of the engine, below the generator | • *G125 (LV3)*<br>• *G103 and G125 (L83/L86/L8B)* | — |
| G130 | Engine Harness | 1500 | In the engine compartment, on the left rear corner of the engine | • *G130 and G140 (L83/L86/L8B)*<br>• *G103, G130 and G140 (LV3)* | — |
| G140 | Engine Harness | 1500 | In the engine compartment, on the top right rear of the engine | • *G130 and G140 (L83/L86/L8B)*<br>• *G103, G130 and G140 (LV3)* | — |
| G141 | Battery Cable | — | Under the vehicle, at right front cab mounting ear of the frame | *G141* | — |
| G201 | Steering Column Harness | — | In the passenger compartment, on the steering column assembly | — | — |
| G210 | Instrument Panel Harness | — | In the passenger compartment, under the right front instrument panel defroster deflector, near the right A-pillar | *G210 and G218* | — |
| G218 | Instrument Panel Harness | — | In the passenger compartment, under the left front instrument panel defroster deflector, near the left A-pillar | *G210 and G218* | — |

| | | | | | |
|---|---|---|---|---|---|
| G311 | Body Harness | — | In the passenger compartment, on the left side B-pillar behind the trim panel | *G311 and G325* | — |
| G312 | Body Harness | — | In the passenger compartment, on the right side B-pillar behind the trim panel | *G312 and G327* | — |
| G325 | Body Harness | — | In the passenger compartment, under the left side of the front passenger seat | *G311 and G325* | — |
| G327 | Body Harness | — | In the passenger compartment, under the right side of the front passenger seat | *G312 and G327* | — |
| G380 | Rear Defogger Grid | — | In the passenger compartment, below the driver side of the rear window, mounted to the rear wall of the cab, behind the trim | — | — |
| G400 | Chassis Harness | — | Under the vehicle, mounted to the right Rear of chassis | *G400* | — |
| G407 | High Voltage Battery Monitoring | HP5 | Under the center console, inside the Hybrid/EV Battery Pack | *G407 (HP5)* | — |
| J100 | Engine Harness | HP5 | In the engine compartment, at the top of the engine assembly | *Engine Harness Routing - Left Front (L8B)* | — |
| J101 | Forward Lamp Harness | — | At the front of the vehicle, behind the front bumper | *Front Bumper Harness Routing* | — |
| J102 | Engine Harness | — | In the engine compartment, in the engine harness | — | — |
| J103 | Engine Harness | — | In the engine compartment, in the engine harness | — | — |
| J104 | Front Bumper Harness | — | At the front of the vehicle, behind the front bumper | — | — |
| J105 | Front Bumper Harness | — | At the front of the vehicle, behind the front bumper | *Front Bumper Harness Routing* | — |
| J106 | Ignition Coil (Even) Harness | — | In the engine compartment, at the top of the engine assembly | — | — |
| J107 | Ignition Coil (Odd) Harness | — | In the engine compartment, at the top of the engine assembly | *Front Bumper Harness Routing* | — |
| J109 | Ignition Coil (Odd) Harness | — | In the engine compartment, at the top of the engine assembly | — | — |
| J110 | Headlamp Harness | — | At the front of the vehicle, inside the headlamp assembly | — | — |
| J111 | Headlamp Harness | — | At the front of the vehicle, inside the headlamp assembly | — | — |
| J112 | Ignition Coil (Even) Harness | — | In the engine compartment, at the top of the engine assembly | — | — |
| J113 | Engine Harness | L5P | In the engine compartment, in the engine harness | *Engine Compartment Left Harness Routing* | — |
| J114 | Forward Lamp Harness | — | In the engine compartment, near the lower left side of the lower radiator support | *Forward Lamp Harness Routing - Left Engine Compartment (HP5)* | — |
| J115 | Forward Lamp Harness | — | In the engine compartment, near the lower left side of the lower radiator support | *Forward Lamp Harness Routing - Left Engine Compartment (HP5)* | — |

| | | | | | |
|---|---|---|---|---|---|
| J119 | Forward Lamp Harness | — | In the engine compartment, near the lower left side of the lower radiator support | *Forward Lamp Harness Routing - Left Engine Compartment (HP5)* | — |
| J120 | Headlamp Harness | — | At the front of the vehicle, inside the headlamp assembly | — | — |
| J121 | Headlamp Harness | — | At the front of the vehicle, inside the headlamp assembly | — | — |
| J122 | Headlamp Harness | — | At the front of the vehicle, inside the headlamp assembly | — | — |
| J123 | Engine Harness | — | On the engine, rear of the intake manifold, near the left center | — | — |
| J124 | Engine Harness | — | In the engine compartment, in the engine harness | • *Engine Harness Routing - Left Front (L8B)*<br>• *Engine Compartment Left Harness Routing* | — |
| J125 | Engine Harness | — | In the engine compartment, near the lower right side of the lower radiator support | • *Engine Compartment Right Harness Routing*<br>• *Forward Lamp Harness Routing - Right Engine Compartment (HP5)*<br>• *Engine Harness Routing - Left Front (L8B)* | — |
| J126 | Engine Harness | — | In the engine compartment, in the engine harness | • *Engine Harness Routing - Left Front (L8B)*<br>• *Engine Compartment Left Harness Routing* | — |
| J128 | Engine Harness | HP5 | In the engine compartment, in the engine harness | *Engine Harness Routing - Left Front (L8B)* | — |
| J130 | Aero Shutter Jumper Harness | — | In the engine compartment, near the center of the lower radiator support | *Forward Lamp Harness Routing - Left Engine Compartment (HP5)* | — |
| J133 | Chassis Harness | — | In the engine compartment, near the underhood fuse block | — | — |
| J142 | Transmission Harness | MW7 | Under the vehicle, inside the transmission assembly | — | — |
| J143 | Transmission Harness | MW7 | Under the vehicle, inside the transmission assembly | — | — |
| J144 | Transmission Harness | MW7 | Under the vehicle, inside the transmission assembly | — | — |
| J148 | Engine Harness | — | In the engine compartment, in the engine harness | — | — |
| J149 | Engine Harness | — | In the engine compartment, in the engine harness | — | — |
| J161 | Engine Harness | — | In the engine compartment, in the engine harness | *Engine Harness Routing - Left Front (L8B)* | — |
| J162 | Engine Harness | — | In the engine compartment, in the engine harness | *Engine Harness Routing - Right Rear (L8B)* | — |

| | | | | | |
|---|---|---|---|---|---|
| J163 | Engine Harness | — | In the engine compartment, in the engine harness | *Engine Harness Routing - Left Front (L8B)* | — |
| J165 | Engine Harness | — | On the engine, rear of the intake manifold, near the left center | - *Engine Harness Routing - Left Front (L8B)*<br>- *Engine Compartment Left Harness Routing* | — |
| J166 | Engine Harness | — | In the engine compartment, near the breakout for the even fuel injectors | *Engine Harness Routing - Right Rear (L8B)* | — |
| J167 | Engine Harness | — | In the engine compartment, near the breakout for the odd fuel injectors | *Engine Harness Routing - Right Rear (L8B)* | — |
| J168 | Chassis Harness | L5P | In the engine compartment, near the breakout for the left front wheel speed sensor | — | — |
| J169 | Chassis Harness | L5P | In the engine compartment, near the breakout for the left front wheel speed sensor | — | — |
| J175 | Transmission Harness | M5U | Under the vehicle, inside the transmission assembly | — | — |
| J176 | Transmission Harness | M5U | Under the vehicle, inside the transmission assembly | — | — |
| J177 | Transmission Harness | M5U | Under the vehicle, inside the transmission assembly | — | — |
| J178 | Engine Harness | M5U/M5X | In the engine compartment, in the engine harness | *Engine Harness Routing - Right Rear (L8B)* | — |
| J179 | Engine Harness | — | In the engine compartment, in the engine harness | *Engine Harness Routing - Right Rear (L8B)* | — |
| J183 | CNG Rear Harness | LC8 | In the engine compartment, in the CNG harness | — | — |
| J184 | CNG Rear Harness | LC8 | In the engine compartment, in the CNG harness | — | — |
| J186 | CNG Main Harness | LC8 | In the engine compartment, in the CNG harness | — | — |
| J189 | CNG Main Harness | LC8 | In the engine compartment, in the CNG harness | — | — |
| J191 | Chassis Harness | — | In the engine compartment, near the breakout for the left front wheel speed sensor | *Chassis Harness Routing* | — |
| J192 | CNG Main Harness | LC8 | In the engine compartment, in the CNG harness | — | — |
| J193 | CNG Main Harness | LC8 | In the engine compartment, in the CNG harness | — | — |
| J194 | Engine Jumper Harness | L5P | In the engine compartment, in the engine jumper harness, near X113 | — | — |
| J195 | Auxiliary Battery Harness | K4B or K4D | In the engine compartment, in the auxiliary battery harness | — | — |
| J195 | Engine Harness | L5P | In the engine compartment, in the engine harness, between Throttle body and X101 | — | — |
| J196 | Engine Harness | L5P | In the engine compartment, in the engine harness, on branch to ECM | — | — |

| | | | | | |
|---|---|---|---|---|---|
| J197 | Engine Harness | L5P | In the engine compartment, in the engine harness, on branch to ECM | — | — |
| J198 | Engine Harness | L5P | In the engine compartment, in the engine harness, between GPCM and G122 | — | — |
| J200 | Instrument Panel Harness | — | In the passenger compartment, behind the left side of the instrument panel | — | — |
| J201 | Instrument Panel Harness | — | In the passenger compartment, behind the left side of the instrument panel | *Passenger Compartment Left Harness Routing* | — |
| J202 | Instrument Panel Harness | — | In the passenger compartment, left side of the instrument panel | *Passenger Compartment Left Harness Routing* | — |
| J203 | Instrument Panel Harness | — | In the passenger compartment, behind the instrument panel | — | — |
| J204 | Steering Column Harness | — | In the passenger compartment, on the steering column assembly | — | — |
| J205 | Instrument Panel Harness | — | In the passenger compartment, behind the left side of the instrument panel | — | — |
| J208 | Instrument Panel Harness | — | In the passenger compartment, behind the instrument panel | — | — |
| J209 | Instrument Panel Harness | — | In the passenger compartment, behind the instrument panel | — | — |
| J210 | Instrument Panel Harness | — | In the passenger compartment, behind the left side of the instrument panel | — | — |
| J211 | Instrument Panel Harness | — | In the passenger compartment, behind the left side of the instrument panel | — | — |
| J212 | Instrument Panel Harness | — | In the passenger compartment, behind the left side of the instrument panel | — | — |
| J213 | Instrument Panel Harness | — | In the passenger compartment, behind the instrument panel | — | — |
| J215 | Instrument Panel Harness | — | In the passenger compartment, behind the instrument panel | — | — |
| J216 | HVAC Harness | — | In the passenger compartment, behind the glove box, in the HVAC harness | *HVAC Assembly Harness Routing* | — |
| J220 | Instrument Panel Harness | — | In the passenger compartment, behind the center of the instrument panel, below the radio | — | — |
| J240 | Instrument Panel Harness | — | In the passenger compartment, behind the left side of the instrument panel | — | — |
| J241 | Instrument Panel Harness | — | In the passenger compartment, behind the right side of the instrument panel | — | — |
| J242 | Instrument Panel Harness | — | In the passenger compartment, behind the right side of the instrument panel | — | — |
| J245 | Instrument Panel Harness | — | In the passenger compartment, behind the center of the instrument panel, to the left of the radio | — | — |

| | | | | | |
|---|---|---|---|---|---|
| J249 | Instrument Panel Harness | — | In the passenger compartment, behind the center of the instrument panel, below the radio | — | — |
| J250 | Instrument Panel Harness | — | In the passenger compartment, behind the center of the instrument panel, to the right of the radio | — | — |
| J255 | HVAC Harness | — | In the passenger compartment, behind the glove box, in the HVAC harness | *HVAC Assembly Harness Routing* | — |
| J257 | HVAC Harness | — | In the passenger compartment, behind the glove box, in the HVAC harness | *HVAC Assembly Harness Routing* | — |
| J258 | HVAC Harness | — | In the passenger compartment, behind the glove box, in the HVAC harness | *HVAC Assembly Harness Routing* | — |
| J260 | Instrument Panel Harness | — | In the passenger compartment, under the right front sill plate | *Passenger Compartment Right Harness Routing* | — |
| J265 | Instrument Panel Harness | E29 | In the passenger compartment, behind the left side of the instrument panel | — | — |
| J266 | Instrument Panel Harness | IOB | In the passenger compartment, behind the left side of the instrument panel | — | — |
| J284 | Steering Column Harness | — | In the passenger compartment, on the steering column assembly | — | — |
| J285 | Steering Wheel Harness | — | In the passenger compartment, behind the driver air bag | — | — |
| J292 | Headliner Harness | — | In the passenger compartment, above the headliner | — | — |
| J295 | Steering Wheel Harness | — | In the passenger compartment, behind the driver air bag | — | — |
| J298 | Instrument Panel Harness | — | In the passenger compartment, right side of the instrument panel | *Passenger Compartment Right Harness Routing* | — |
| J299 | Instrument Panel Harness | — | In the passenger compartment, behind the instrument panel, behind the center of the instrument cluster | *Passenger Compartment Right Harness Routing* | — |
| J300 | Chassis Harness | — | Underneath the vehicle, along the outside of the left frame rail, near the driver door | — | — |
| J302 | Body Harness | — | In the passenger compartment, under the left side of the instrument panel | — | — |
| J303 | Overhead Console Harness | — | In the passenger compartment, above the headliner | — | — |
| J305 | Instrument Panel Harness | — | In the passenger compartment, under the left front sill plate | *Passenger Compartment Left Harness Routing* | — |
| J306 | Body Harness | — | In the passenger compartment, under the left front sill plate | *Passenger Compartment Left Harness Routing* | — |
| J307 | Body Harness | — | In the passenger compartment, under the left front sill plate | *Passenger Compartment Left Harness Routing* | — |
| J308 | Body Harness | — | In the passenger compartment, under the left front sill plate | *Passenger Compartment Left Harness Routing* | — |

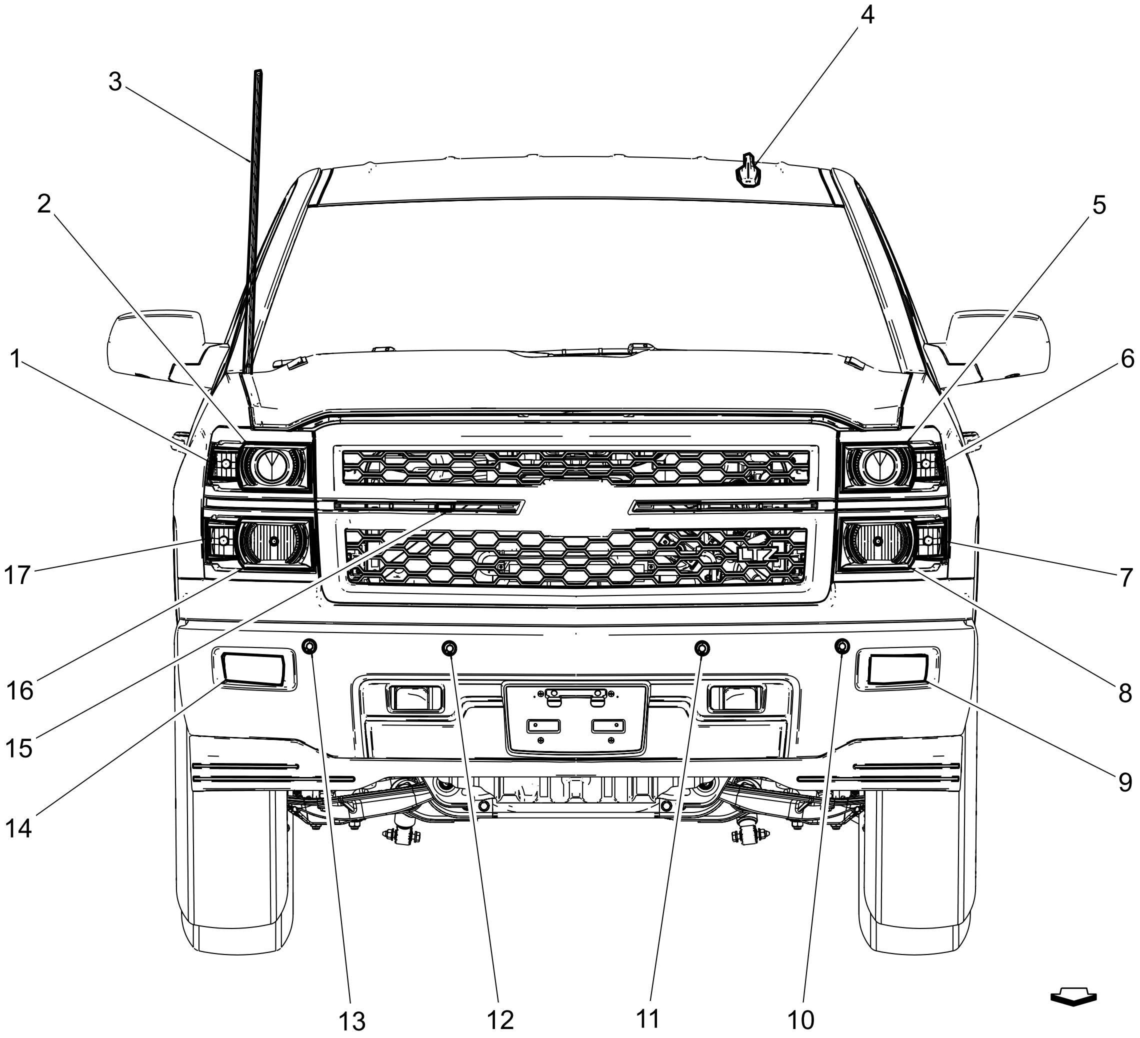
|  |  |  |  |  |  |
|---|---|---|---|---|---|
| J309 | Body Harness | — | In the passenger compartment, under the left front sill plate | *Passenger Compartment Left Harness Routing* | — |
| J310 | Headliner Harness | Extended or Crew Cab or Standard Cab with DH6 | In the passenger compartment, in the headliner, near the left B-pillar | — | — |
| J311 | Driver Seat Cushion Harness | — | In the passenger compartment, under the driver seat | — | — |
| J312 | Headliner Harness | Extended or Crew Cab | In the passenger compartment, in the headliner, near the left B-pillar | — | — |
| J313 | Driver Seat Cushion Harness | — | In the passenger compartment, in the headliner, near the C-pillar | • *Back of Driver Seat Harness Routing*<br>• *Bottom of Driver Seat Harness Routing* | — |
| J314 | Driver Seat Cushion Harness | — | In the passenger compartment, under the driver seat | *Bottom of Driver Seat Harness Routing* | — |
| J315 | Driver Seat Cushion Harness | — | In the passenger compartment, under the driver seat | *Bottom of Driver Seat Harness Routing* | — |
| J316 | Driver Seat Cushion Harness | — | In the passenger compartment, under the driver seat | *Bottom of Driver Seat Harness Routing* | — |
| J317 | Headliner Harness | — | In the passenger compartment, above the headliner | *Bottom of Driver Seat Harness Routing* | — |
| J318 | Driver Seat Cushion Harness | — | In the passenger compartment, under the driver seat | — | — |
| J323 | Passenger Seat Cushion Harness | — | In the passenger compartment, under the passenger seat cushion | *Bottom of Passenger Seat Harness Routing* | — |
| J324 | Passenger Seat Cushion Harness | — | In the passenger compartment, under the passenger seat cushion | *Bottom of Passenger Seat Harness Routing* | — |
| J326 | Passenger Seat Cushion Harness | — | In the passenger compartment, under the passenger seat cushion | *Bottom of Passenger Seat Harness Routing* | — |
| J327 | Passenger Seat Cushion Harness | — | In the passenger compartment, under the passenger seat cushion | *Bottom of Passenger Seat Harness Routing* | — |
| J328 | Passenger Seat Back Harness | — | In the passenger compartment, in the passenger seat back | — | — |
| J331 | Body Harness | — | In the passenger compartment, under the left rear of the left front seat | *Passenger Compartment Left Harness Routing* | — |
| J332 | Headliner Harness | — | In the passenger compartment, in the headliner, near the driver sunshade | — | — |
| J333 | Overhead Console Harness | — | In the passenger compartment, above the headliner | — | — |
| J350 | Body Harness | — | In the passenger compartment, under the driver seat | *Passenger Compartment Right Harness Routing* | — |
| J355 | Chassis Harness | — | Under the vehicle, along driver side of the frame, under the driver door | • *Chassis Harness Routing*<br>• *Chassis Cab Harness Routing* | — |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| J356 | Chassis Harness | — | Under the vehicle, along driver side of the frame, under the driver door | • *Chassis Harness Routing*<br>• *Chassis Cab Harness Routing* | — |
| J358 | Floor Console | — | In the passenger compartment, behind the lower center of the instrument panel | *Floor Console Harness Routing* | — |
| J360 | Body Harness | — | In the passenger compartment, behind the left front kick panel, at the base of the A-pillar | *Passenger Compartment Right Harness Routing* | — |
| J361 | Body Harness | — | In the passenger compartment, under the left rear of the center console | *Passenger Compartment Left Harness Routing* | — |
| J362 | Body Harness | — | In the passenger compartment, below the passenger door sill plate | *Passenger Compartment Right Harness Routing* | — |
| J365 | Body Harness | — | In the passenger compartment, under the right front sill plate | *Passenger Compartment Right Harness Routing* | — |
| J367 | Body Harness | — | In the passenger compartment, under the right front sil plate | • *Passenger Compartment Right Harness Routing*<br>• *Passenger Compartment Right Harness Routing* | — |
| J370 | Body Harness | — | In the passenger compartment, near the base of the left B-pillar | — | — |
| J372 | Body Harness | — | In the passenger compartment, under the passenger seat | *Passenger Compartment Right Harness Routing* | — |
| J375 | Chassis Harness | — | Under the vehicle, on the rear of the left frame rail | • *Chassis Harness Routing*<br>• *Chassis Cab Harness Routing* | — |
| J379 | Body Harness | — | In the passenger compartment, under the rear of the center console | *Passenger Compartment Left Harness Routing* | — |
| J380 | Body Harness | — | In the passenger compartment, under the rear of the center console | *Passenger Compartment Left Harness Routing* | — |
| J382 | Body Harness | — | In the passenger compartment, under the left rear of the center console | *Passenger Compartment Left Harness Routing* | — |
| J383 | Body Harness | — | In the passenger compartment, behind the left front kick panel, at the base of the A-pillar | *Passenger Compartment Left Harness Routing* | — |
| J384 | Body Harness | — | In the passenger compartment, under the left rear of the center console | *Passenger Compartment Left Harness Routing* | — |
| J395 | Headliner Harness | — | In the passenger compartment, above the headliner | — | — |
| J411 | Clearance Lamp Jumper | — | At the rear of the vehicle, under the bed | — | — |
| J421 | Clearance Lamp Jumper | — | At the rear of the vehicle, under the bed | — | — |
| J449 | Chassis Harness | JL1 or Z85 | Underside of the vehicle, left frame rail, at rear of vehicle, forward of break-out for the left rear speed sensor | — | — |
| J450 | Chassis Harness | — | Under the rear of the vehicle, between the frame rails, above the spare tire | • *Chassis Harness Routing*<br>• *Chassis Cab Harness Routing* | — |

| | | | | | |
|---|---|---|---|---|---|
| J451 | Chassis Harness | — | Under the rear of the vehicle, at the inside of the frame rail near the spare tire | ● *Chassis Cab Harness Routing*<br>● *Chassis Harness Routing* | — |
| J490 | Rear Bumper Harness | — | In the rear bumper, near the upper left center of the bumper | *Rear Bumper Harness Routing* | — |
| J491 | Cargo Lamp Jumper | — | At the rear of the vehicle, under the bed | — | — |
| J495 | Rear Bumper Harness | — | In the rear bumper, near the upper left center of the bumper | *Rear Bumper Harness Routing* | — |
| J505 | Driver Door Trim Harness | — | Behind the driver door trim panel | — | — |
| J515 | Driver Door Harness | — | In the driver door, behind the trim panel, near the front window track | ● *Doors (Regular Cab with Manual Windows) Harness Routing*<br>● *Driver Door Harness Routing* | — |
| J519 | Driver Door Harness | — | In the driver door, near X505 connector | *Driver Door Harness Routing* | — |
| J550 | Driver Door Harness | — | In the driver door, near the front window track | *Driver Door Harness Routing* | — |
| J615 | Passenger Door Harness | — | In the passenger door, behind the trim panel, near the front window track | ● *Passenger Door Harness Routing*<br>● *Doors (Regular Cab with Manual Windows) Harness Routing* | — |
| J715 | Left Rear Door Harness | — | In the left rear door, behind the trim panel, near the front window track | *Rear Doors Harness Routing* | — |
| J815 | Right Rear Door Harness | — | In the right rear door, behind the trim panel, near the front window track | *Rear Doors Harness Routing* | — |
| J901 | Camper Jumper | — | Under the vehicle, above the spare tire | *Chassis Jumper Harness Routing (UY2)* | — |
| J902 | Camper Jumper | — | Under the vehicle, above the spare tire | *Chassis Jumper Harness Routing (UY2)* | — |
| J903 | Camper Jumper | — | Under the vehicle, above the spare tire | *Chassis Jumper Harness Routing (UY2)* | — |
| J904 | Camper Jumper | — | Under the vehicle, above the spare tire | *Chassis Jumper Harness Routing (UY2)* | — |
| J905 | Camper Jumper | — | Under the vehicle, above the spare tire | *Chassis Jumper Harness Routing (UY2)* | — |
| J906 | Camper Jumper | — | Under the vehicle, above the spare tire | *Chassis Jumper Harness Routing (UY2)* | — |
| J907 | Camper Jumper | — | Under the vehicle, above the spare tire | *Chassis Jumper Harness Routing (UY2)* | — |
| JX101 | CNG Front Harness | LC8 | In the engine compartment, mounted to a bracket that is mounted to the bottom of the battery tray, on the left front of the engine compartment | — | — |
| JX102 | CNG Front Harness | LC8 | In the engine compartment, mounted to a bracket that is mounted to the bottom of the battery tray, on the left front of the engine compartment | — | — |

|  |  |  |  |  |  |
|---|---|---|---|---|---|
| JX200 | Instrument Panel Harness | — | In the passenger compartment, at the base of the left A-pillar behind the trim panel | — | *JX200 Splice Pack* |
| JX300 | Body Harness | — | In the passenger compartment, at the base of the right A-pillar behind the trim panel | *Passenger Compartment Right Harness Routing* | *JX300 Splice Pack* |

## Front of Vehicle (Chevrolet) Components

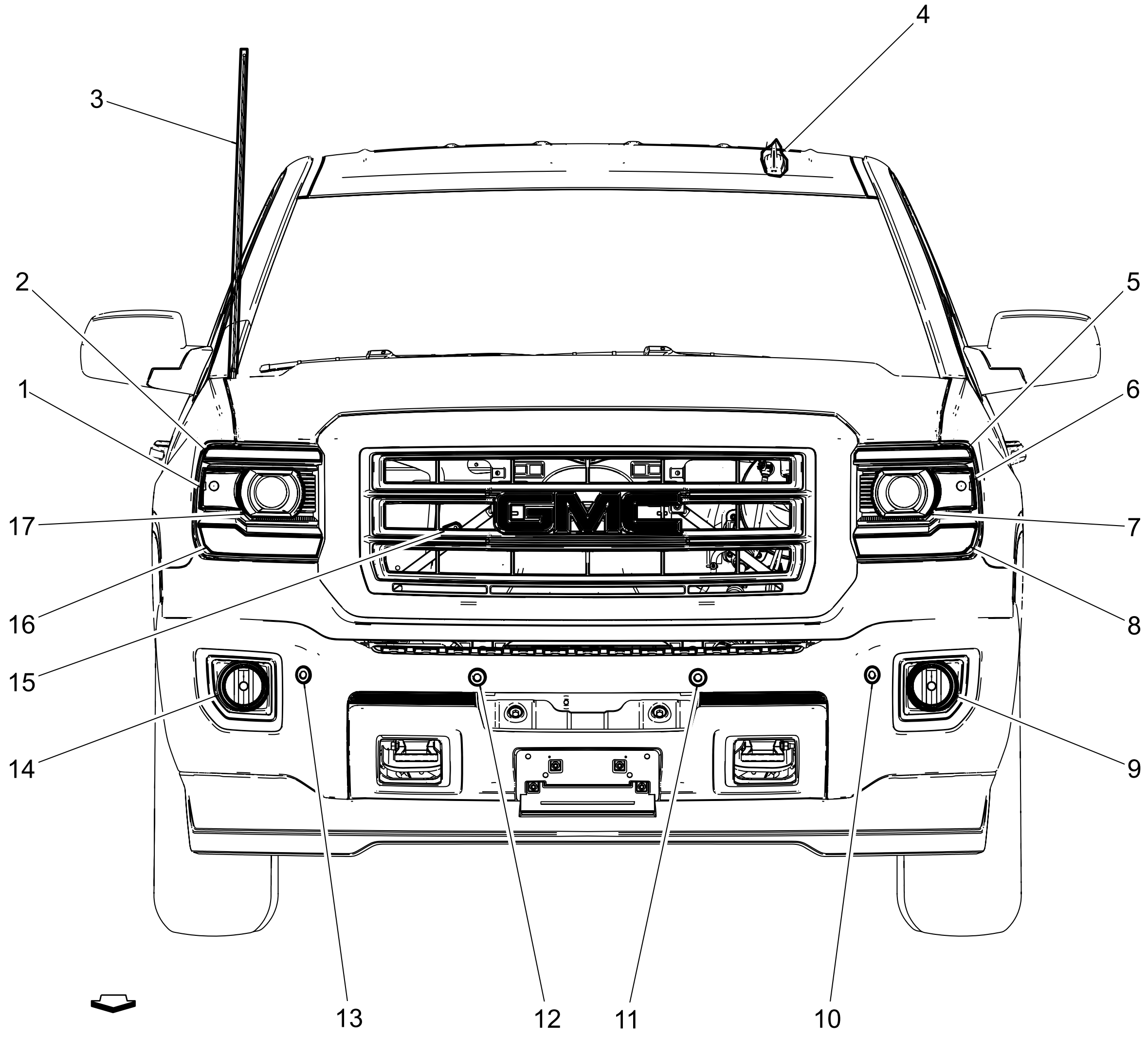


**Items**

1. E4T Park/Turn Signal Lamp - Right Upper (X88)
2. E4H Headlamp - Right Low Beam
3. T4M Radio Antenna
4. T4G Cellular Phone, Navigation, and Digital Radio Antenna
5. E4G Headlamp - Left Low Beam
6. E4S Park/Turn Signal Lamp - Left Upper (X88)
7. E4Q Park/Turn Signal Lamp - Left Lower (X88)
8. E4E Headlamp - Left High Beam (X88)
9. E29LF Fog Lamp - Left Front (T3U)
10. B78A Front Object Sensor - Left Outer (UD5)
11. B78C Front Object Sensor - Left Middle (UD5)

11. B78C Front Object Sensor - Left Middle (UD5)
12. B78D Front Object Sensor - Right Middle (UD5)
13. B78B Front Object Sensor - Right Outer (UD5)
14. E29RF Fog Lamp - Right Front (T3U)
15. B9 Ambient Air Temperature Sensor
16. E4F Headlamp - Right High Beam (X88)
17. E4R Park/Turn Signal Lamp - Right Lower (X88)

## Front of Vehicle (GMC) Components

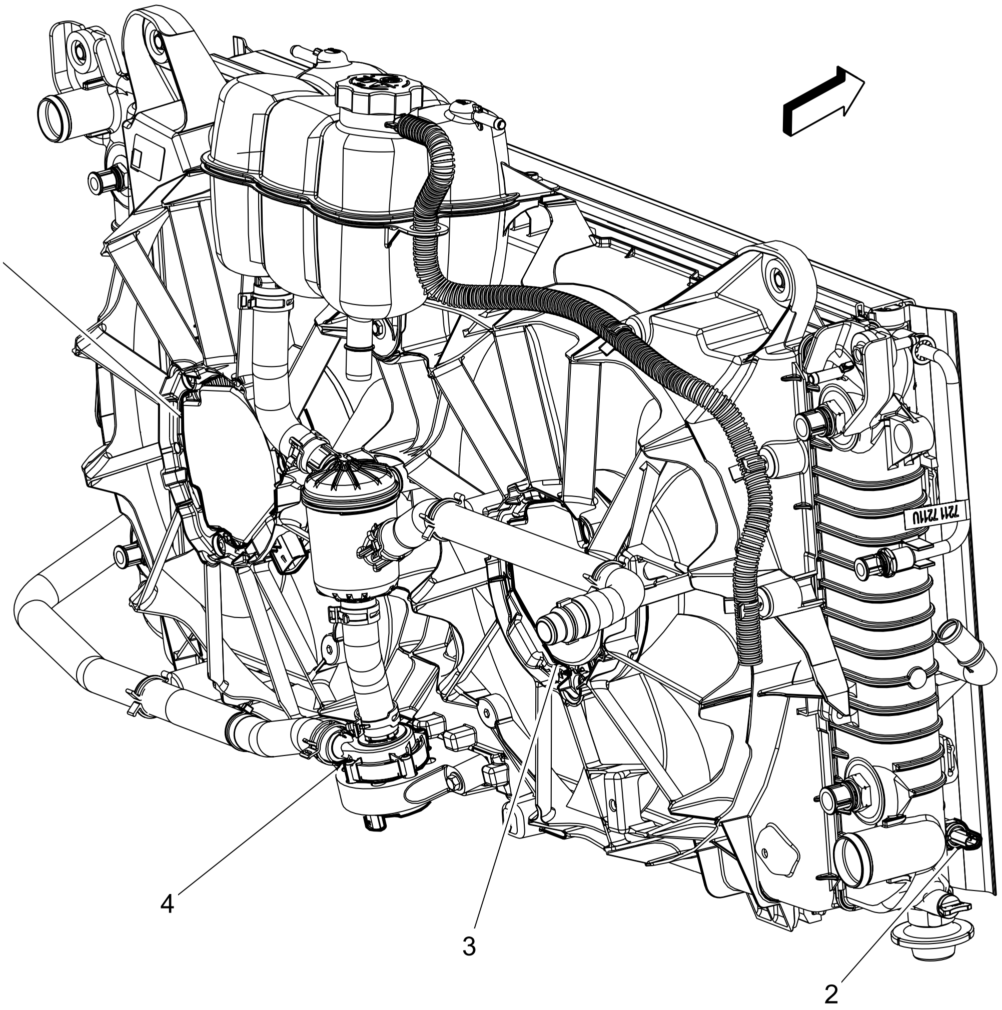


**Items**

1. E4P Park/Turn Signal Lamp - Right (Z88)
2. E4J Park Lamp - Left Front (Z88 with SLT)
3. T4M Radio Antenna
4. T4G Cellular Phone, Navigation, and Digital Radio Antenna
5. E4K Park Lamp - Right Front (Z88 with SLT)
6. E4G Headlamp - Left Low Beam
7. E4N Park/Turn Signal Lamp - Left (Z88)
8. E4AD Park/Daytime Running Lamp - Right (Z88 with SLT)
9. E29LF Fog Lamp - Left Front (T3U)
10. B78A Front Object Sensor - Left Outer (UD5)
11. B78C Front Object Sensor - Left Middle (UD5)

11. B78C Front Object Sensor - Left Middle (UD5)
12. B78D Front Object Sensor - Right Middle (UD5)
13. B78B Front Object Sensor - Right Outer (UD5)
14. E29RF Fog Lamp - Right Front (T3U)
15. B9 Ambient Air Temperature Sensor
16. E4AC Park/Daytime Running Lamp - Left (Z88 with SLT)
17. E4H Headlamp - Right Low Beam

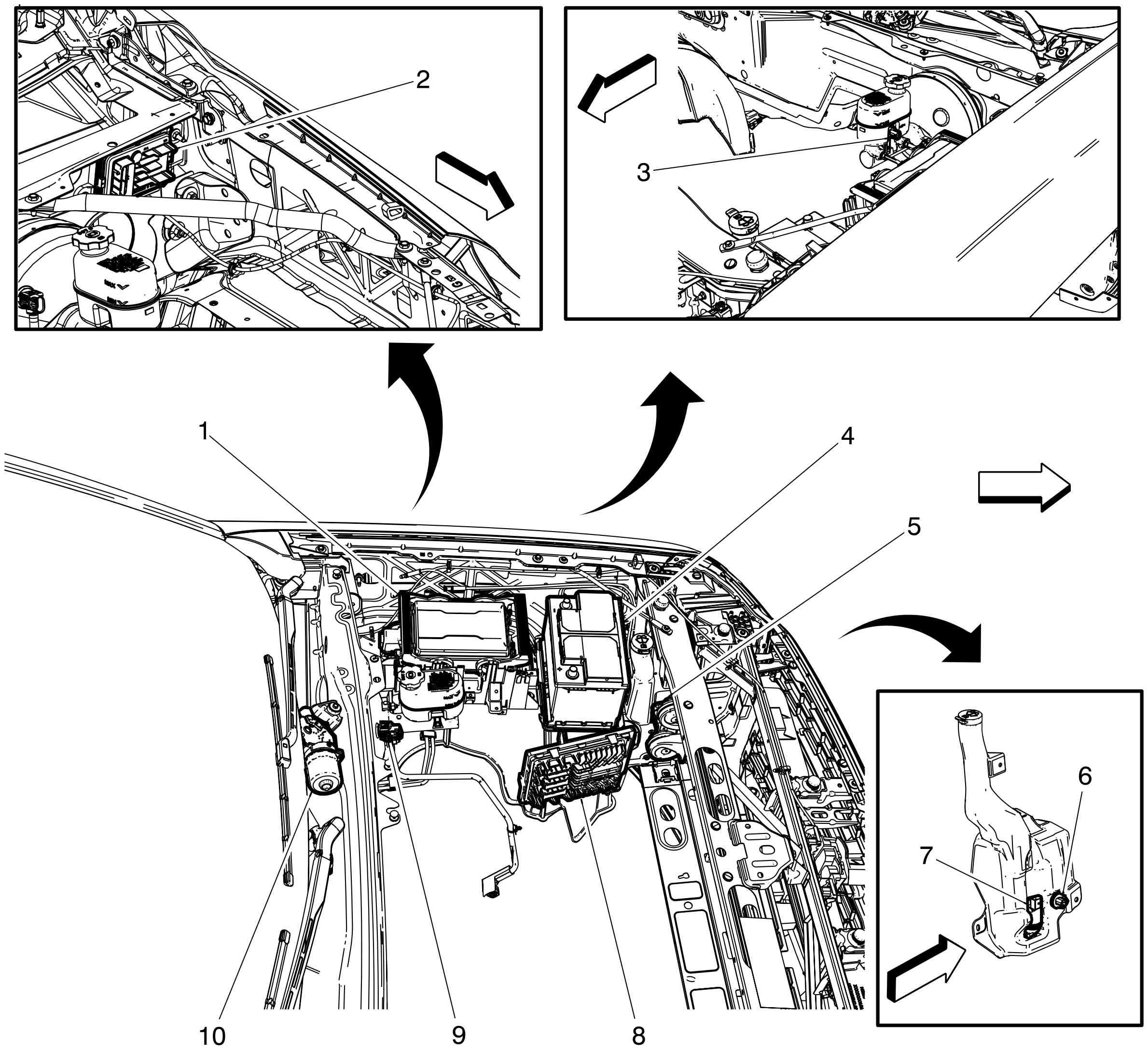
## Cooling Fans (HP5)



**Items**

1. G10L Cooling Fan Motor - Left (1500)
2. B235 Starter/Generator Coolant Temperature Sensor (HP5)
3. G10R Cooling Fan Motor - Right (1500)
4. G43 Starter/Generator Coolant Pump (HP5)

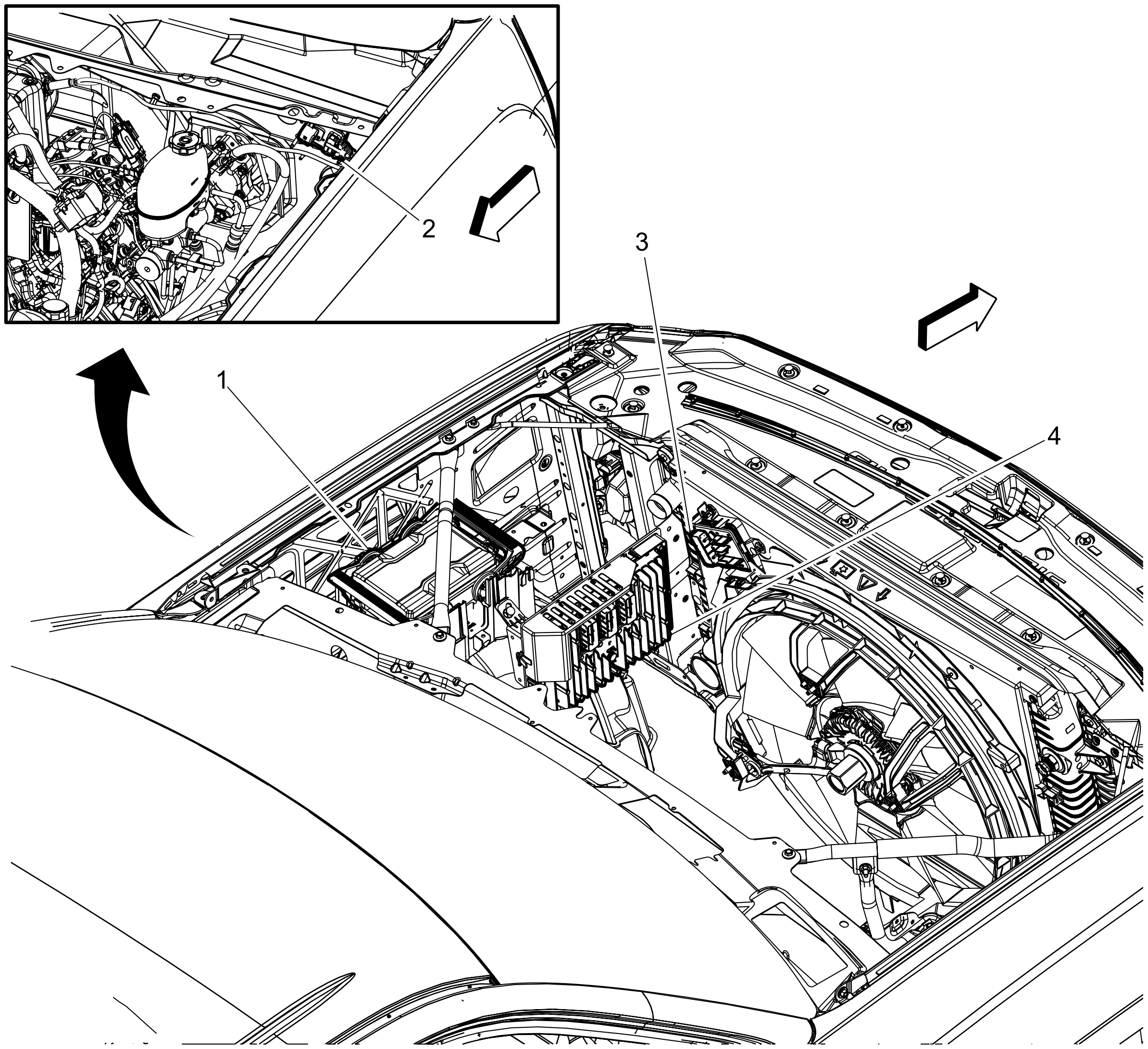
## Left Side of Engine Compartment Components (except L5P)



**Items**

1. X50A Fuse Block - Underhood
2. K71 Transmission Control Module
3. B20 Brake Fluid Level Switch
4. C1B Battery - Auxiliary (K4B, K4D or L5P)
5. P12 Horn
6. B118B Windshield Washer Fluid Level Switch
7. G24 Windshield Washer Pump
8. K20 Engine Control Module
9. B19B Brake Booster Vacuum Sensor
10. M75 Windshield Wiper Motor

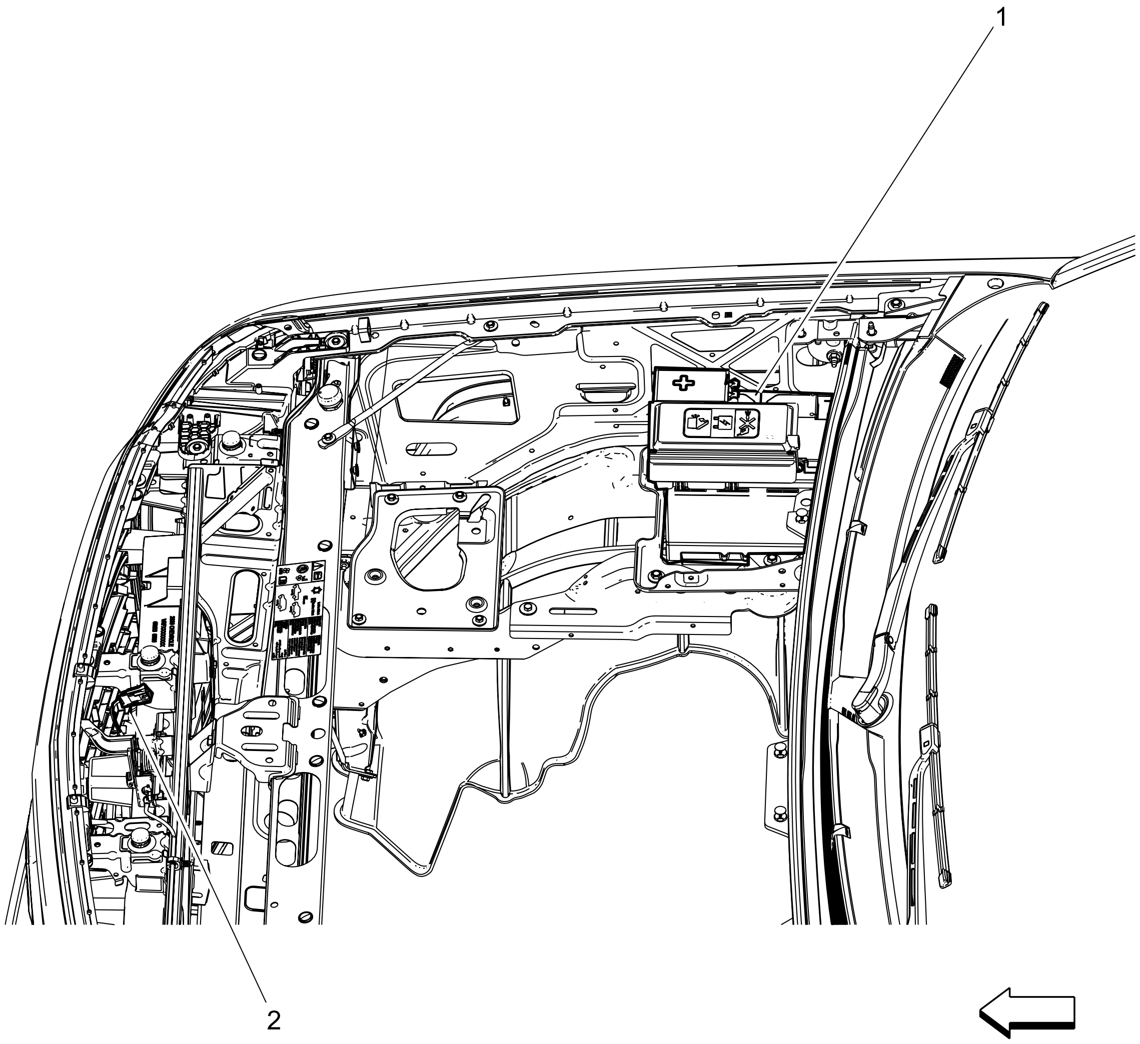
## Left Side of Engine Compartment Components (L5P)



**Items**

1. X50A Fuse Block - Underhood
2. B195A Nitrogen Oxides Sensor 1 (L5P)
3. K71 Transmission Control Module
4. K20 Engine Control Module

## Right Side of Engine Compartment Components

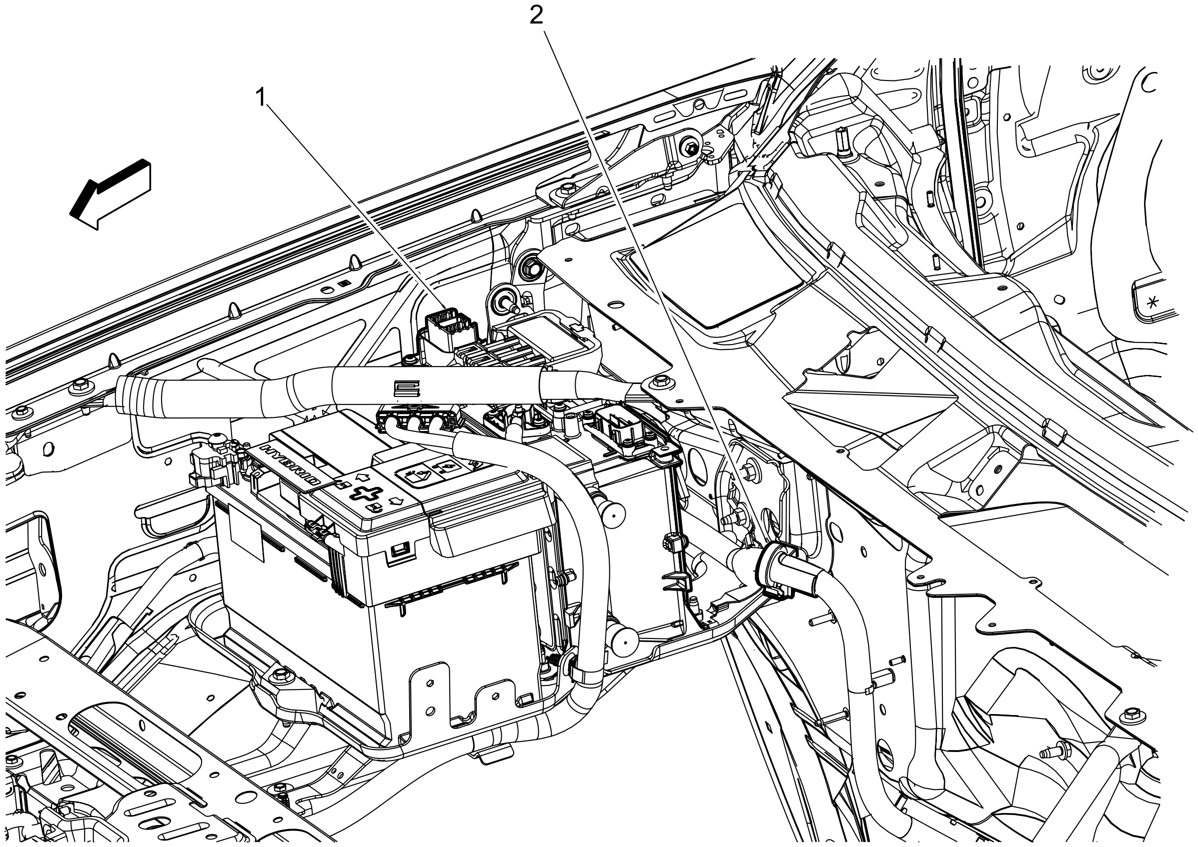


**Items**

1. C1 Battery

2. B55 Hood Ajar Switch (BTV/PTO/UTJ/HP5)

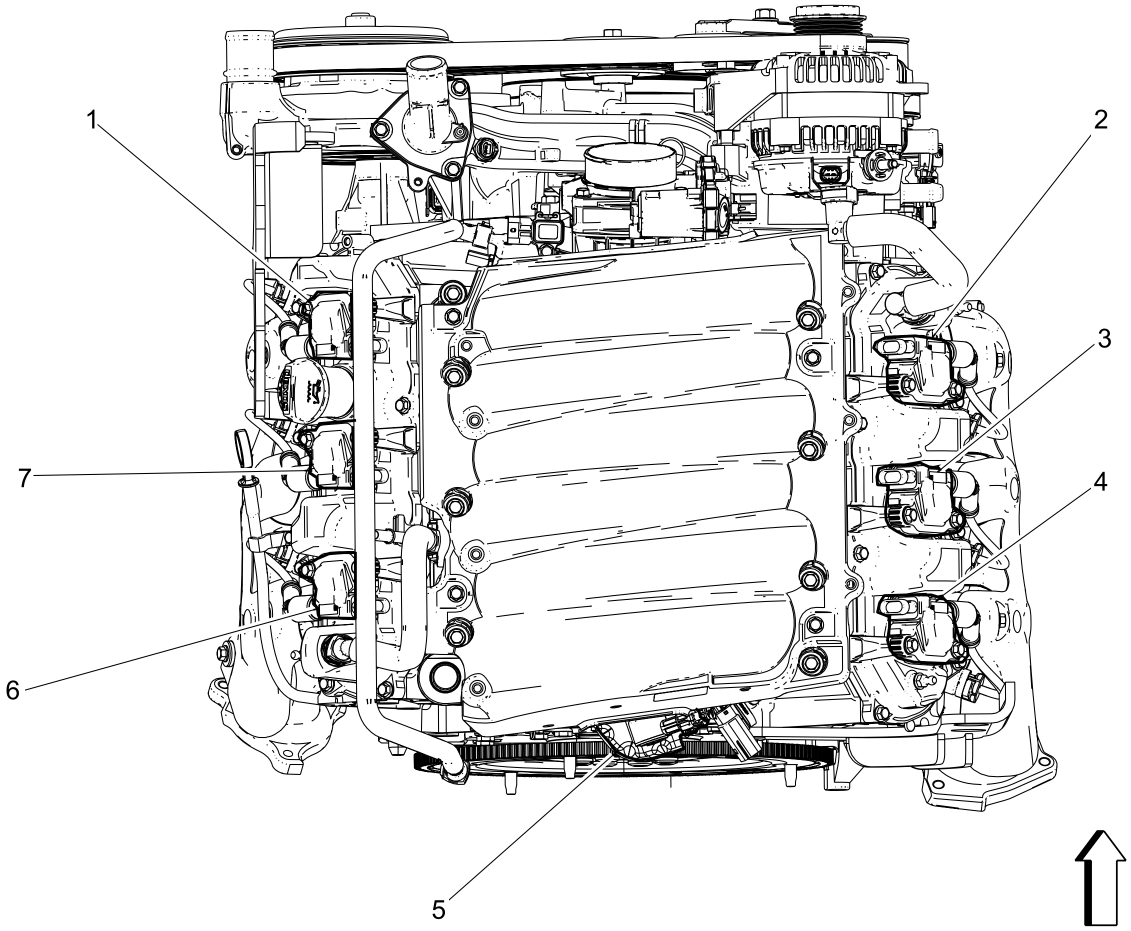
## Right Rear of Engine Compartment Components (HP5)



**Items**

1. K59 Starter/Generator Control Module (HP5)
2. B18 Battery Current Sensor

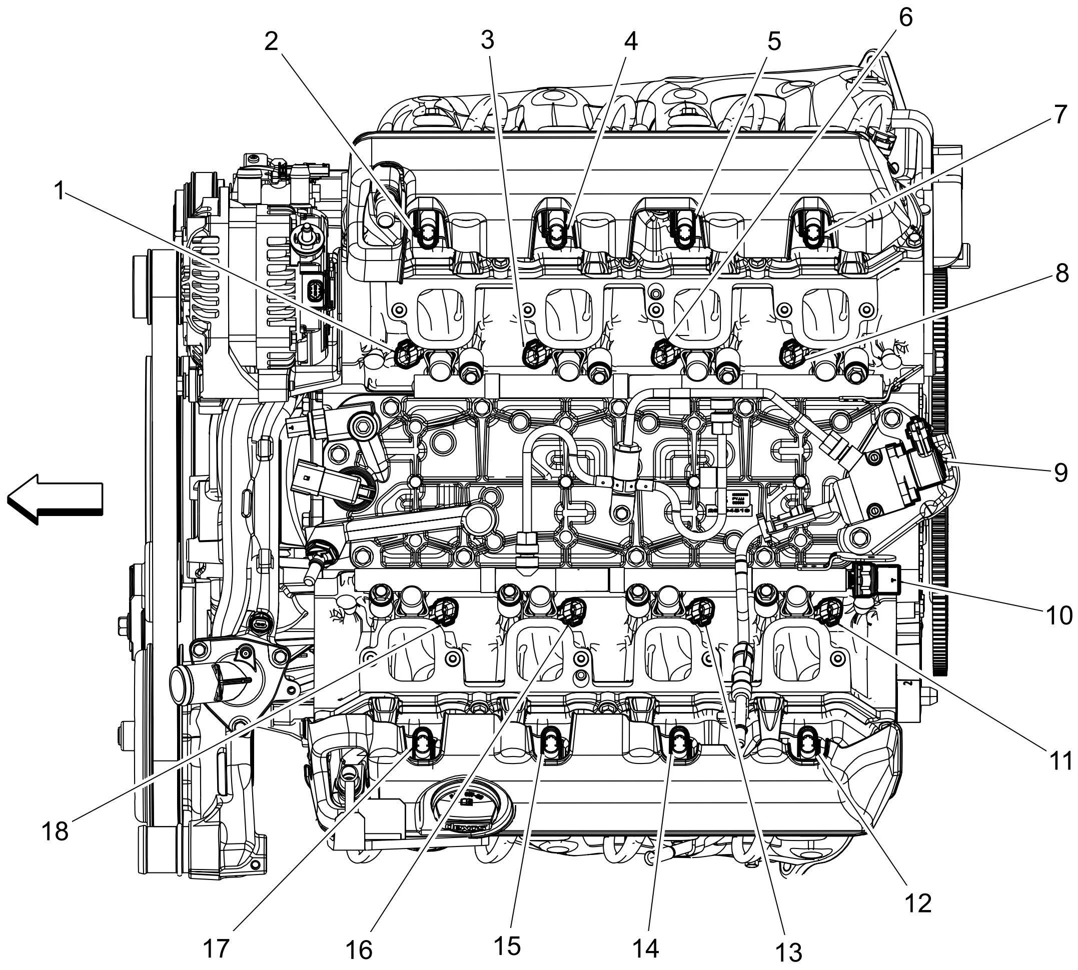
## Top of Engine Components (LV3)



**Items**

1. T8A Ignition Coil 1 (except L5P)
2. T8B Ignition Coil 2 (except L5P)
3. T8D Ignition Coil 4 (except L5P)
4. T8F Ignition Coil 6 (except L5P)
5. G18 High Pressure Fuel Pump (1500)
6. T8E Ignition Coil 5 (except L5P)
7. T8C Ignition Coil 3 (except L5P)

## Top of Engine Components (L83/L86/L8B)

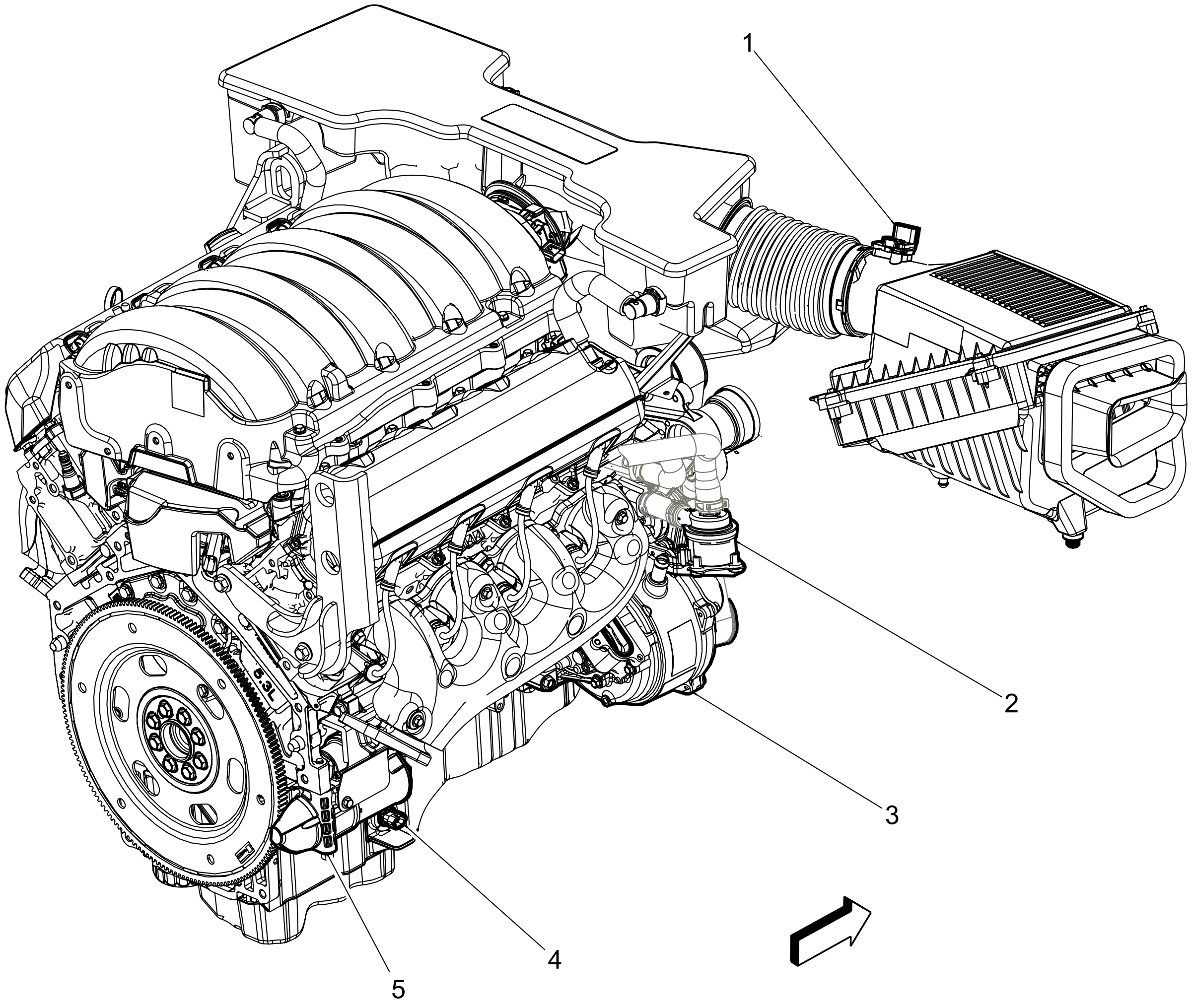


**Items**

1. Q17B Fuel Injector 2
2. T8B Ignition Coil 2 (except L5P)
3. Q17D Fuel Injector 4
4. T8D Ignition Coil 4 (except L5P)
5. T8F Ignition Coil 6 (except L5P)
6. Q17F Fuel Injector 6
7. T8H Ignition Coil 8 (L83, L86, L96 or LC8)
8. Q17H Fuel Injector 8
9. G18 High Pressure Fuel Pump (1500)
10. B47B Fuel Rail Pressure Sensor (1500 or L5P)
11. Q17G Fuel Injector 7

11. Q17G Fuel Injector 7
12. T8G Ignition Coil 7 (L83, L86, L96 or LC8)
13. Q17E Fuel Injector 5
14. T8E Ignition Coil 5 (except L5P)
15. T8C Ignition Coil 3 (except L5P)
16. Q17C Fuel Injector 3
17. T8A Ignition Coil 1 (except L5P)
18. Q17A Fuel Injector 1

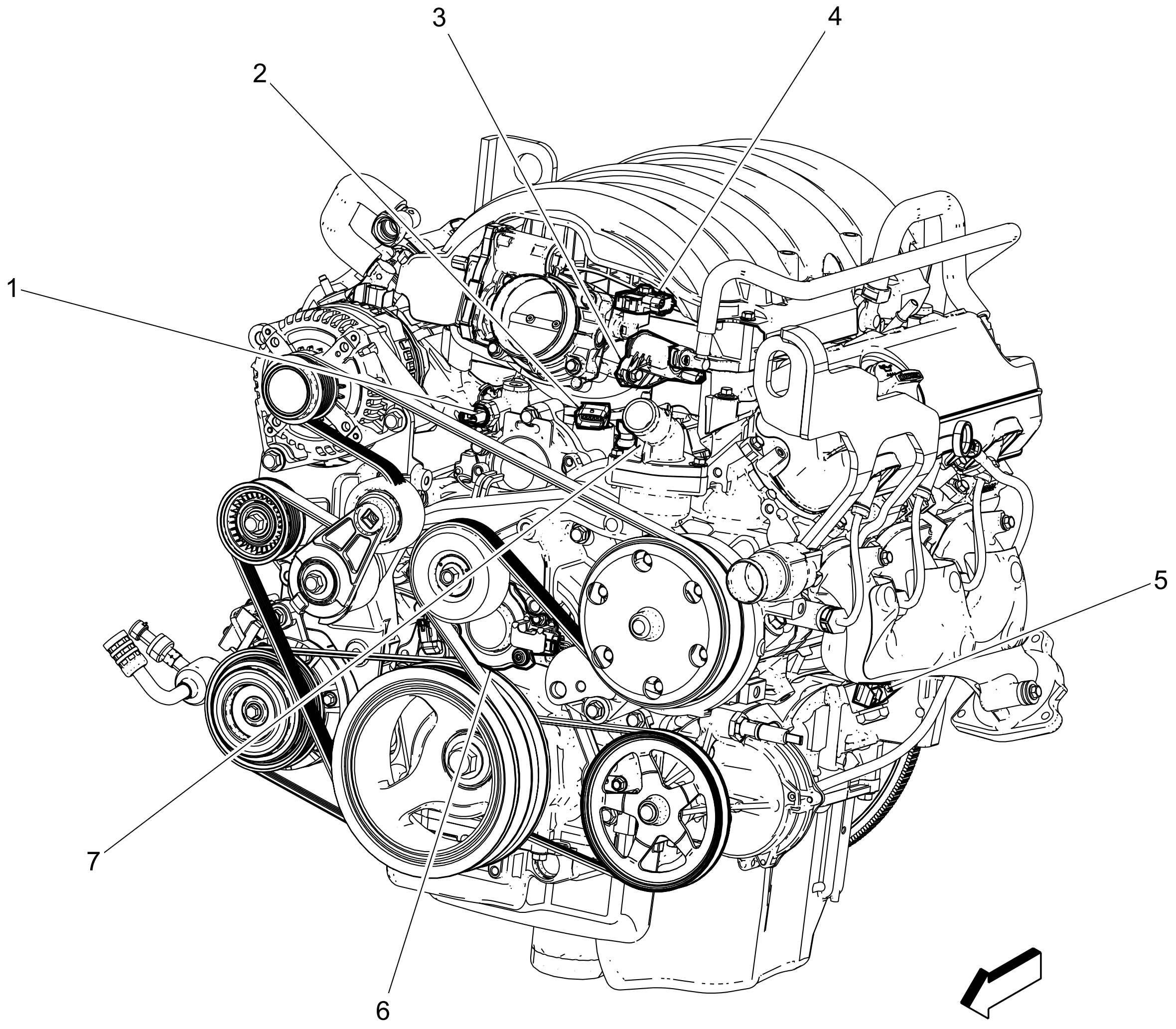
# Right Rear Side of Engine Components (L8B)



**Items**

1. B75C Multifunction Intake Air Sensor
2. G17 Heater Coolant Pump (HP5)
3. A15 Starter/Generator (HP5)
4. B35 Engine Oil Level Switch (1500 or L5P)
5. M64 Starter Motor

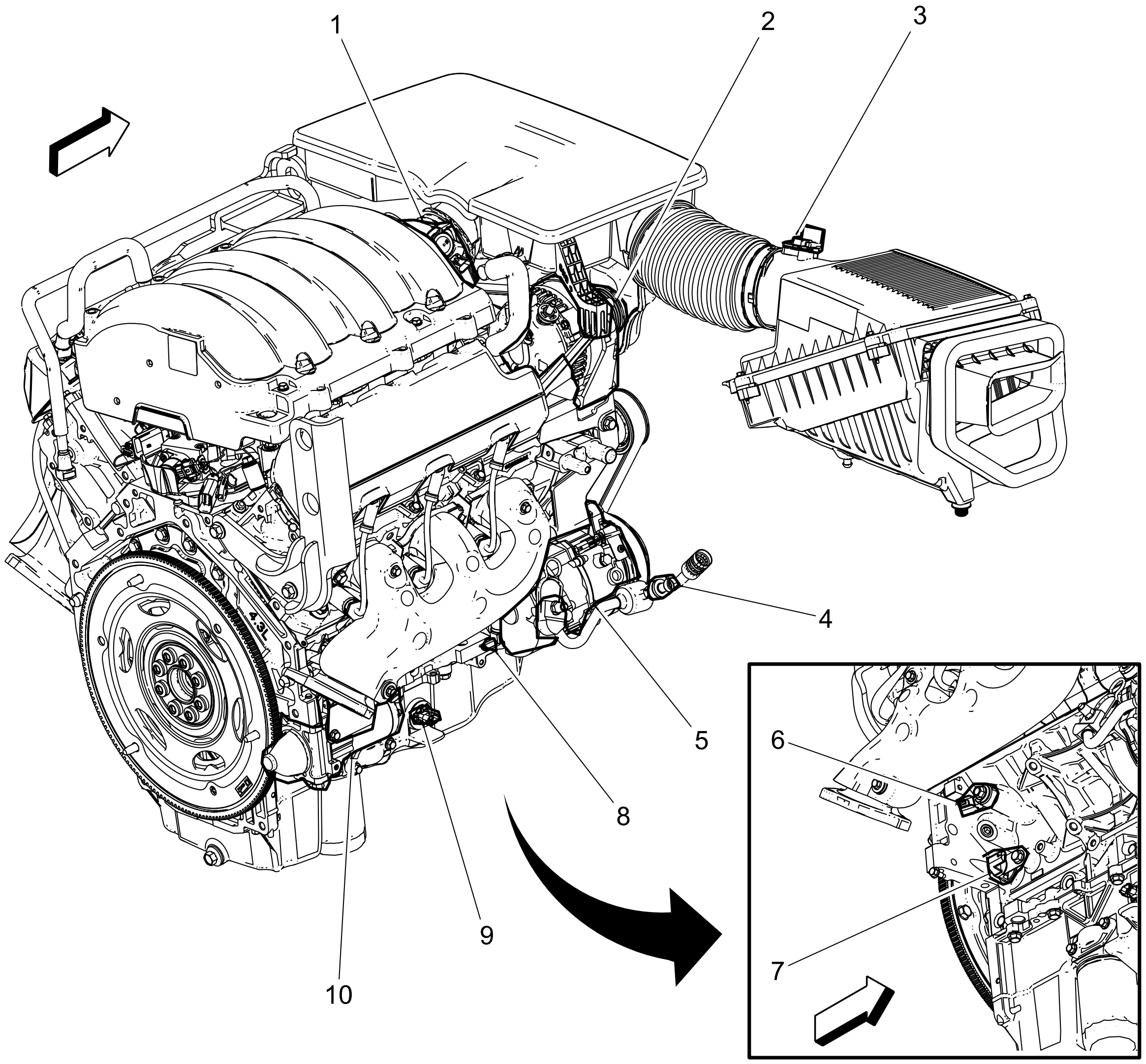
# Left Front of Engine Components (LV3)



**Items**

1. B37B Engine Oil Pressure Sensor
2. Q43 Valve Lifter Oil Manifold Assembly (1500)
3. Q12 Evaporative Emission Purge Solenoid Valve (except L5P)
4. B74 Manifold Absolute Pressure Sensor
5. B68A Knock Sensor 1 (except L5P)
6. Q6 Camshaft Position Actuator Solenoid Valve (except L5P)
7. B34 Engine Coolant Temperature Sensor

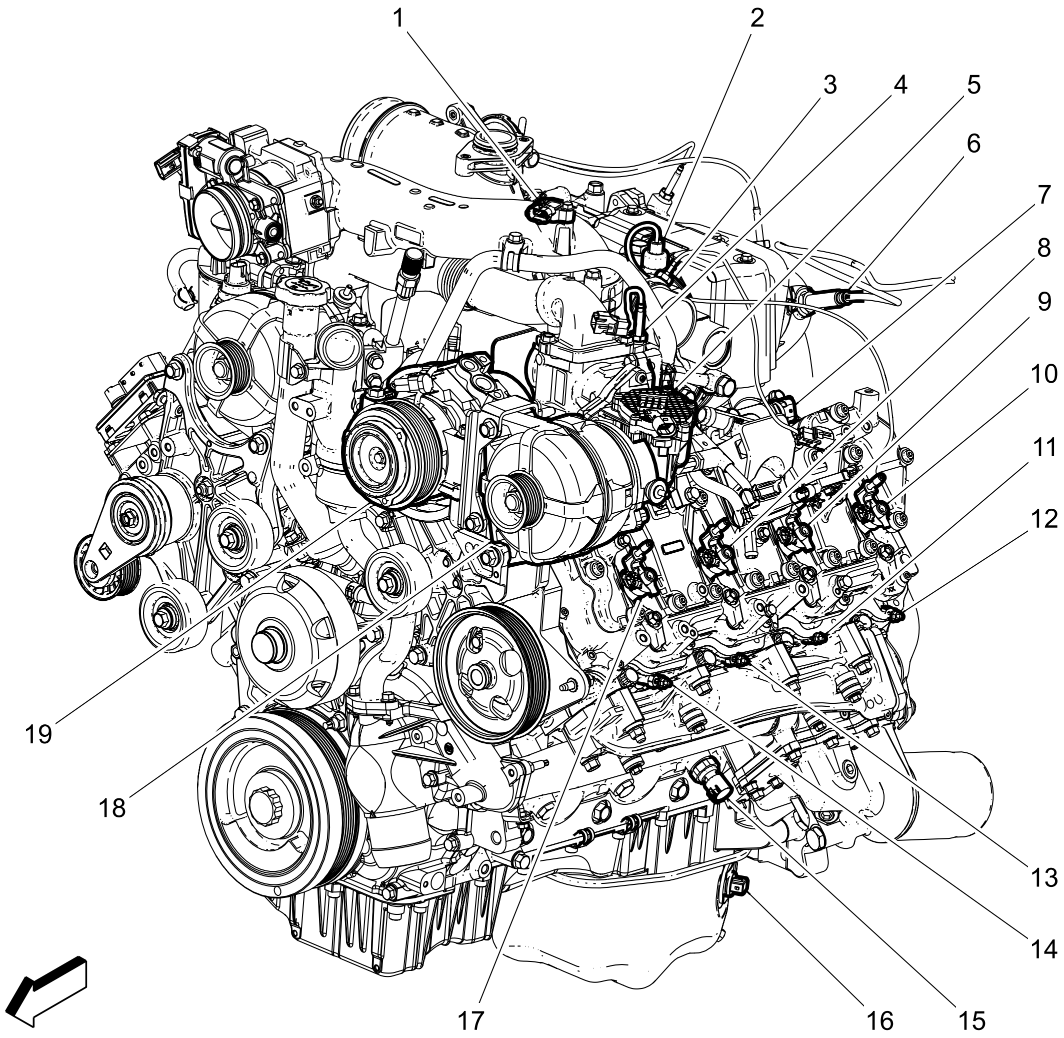
# Right Rear of Engine Components (LV3)



**Items**

| | |
|---|---|
| 1. | Q38 Throttle Body |
| 2. | G13 Generator |
| 3. | B75C Multifunction Intake Air Sensor |
| 4. | B1 A/C Refrigerant Pressure Sensor (C67 or CJ2) |
| 5. | Q2 A/C Compressor Clutch (C67 or CJ2) |
| 6. | B68B Knock Sensor 2 (except L5P) |
| 7. | B26 Crankshaft Position Sensor |
| 8. | Q46 A/C Compressor Solenoid Valve (C67 or CJ2) |
| 9. | B35 Engine Oil Level Switch (1500 or L5P) |
| 10. | M64 Starter Motor |

## Left Side of Engine Components (L5P)

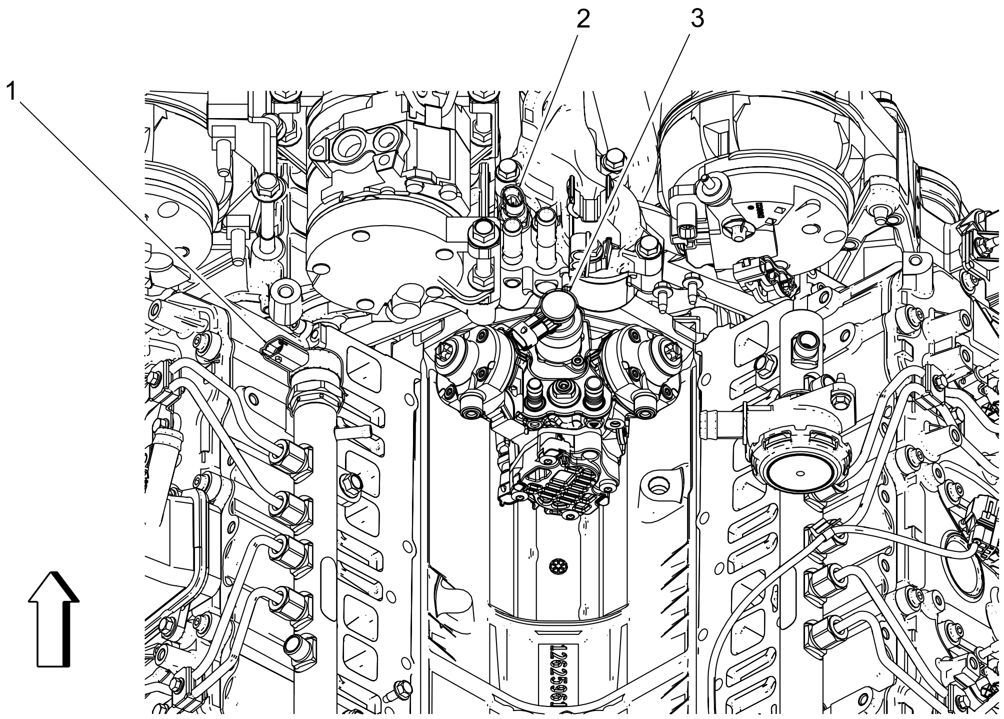


**Items**

1. B74 Manifold Absolute Pressure Sensor
2. B112 Turbocharger Vane Position Sensor (L5P)
3. B193A Charge Air Cooler Inlet Temperature Sensor (L5P)
4. B130B Exhaust Gas Recirculation Temperature Sensor 2 (L5P)
5. Q14 Exhaust Gas Recirculation Valve (L5P)
6. B195A Nitrogen Oxides Sensor 1 (L5P)
7. B47B Fuel Rail Pressure Sensor (1500 or L5P)
8. Q17D Fuel Injector 4
9. Q17F Fuel Injector 6
10. Q17H Fuel Injector 8
11. E12F Glow Plug 6 (L5P)

11. E12F Glow Plug 6 (L5P)
12. E12H Glow Plug 8 (L5P)
13. E12D Glow Plug 4 (L5P)
14. E12B Glow Plug 2 (L5P)
15. B37B Engine Oil Pressure Sensor
16. B35 Engine Oil Level Switch (1500 or L5P)
17. Q17B Fuel Injector 2
18. G13 Generator
19. G1 A/C Compressor (C67 or CJ2)

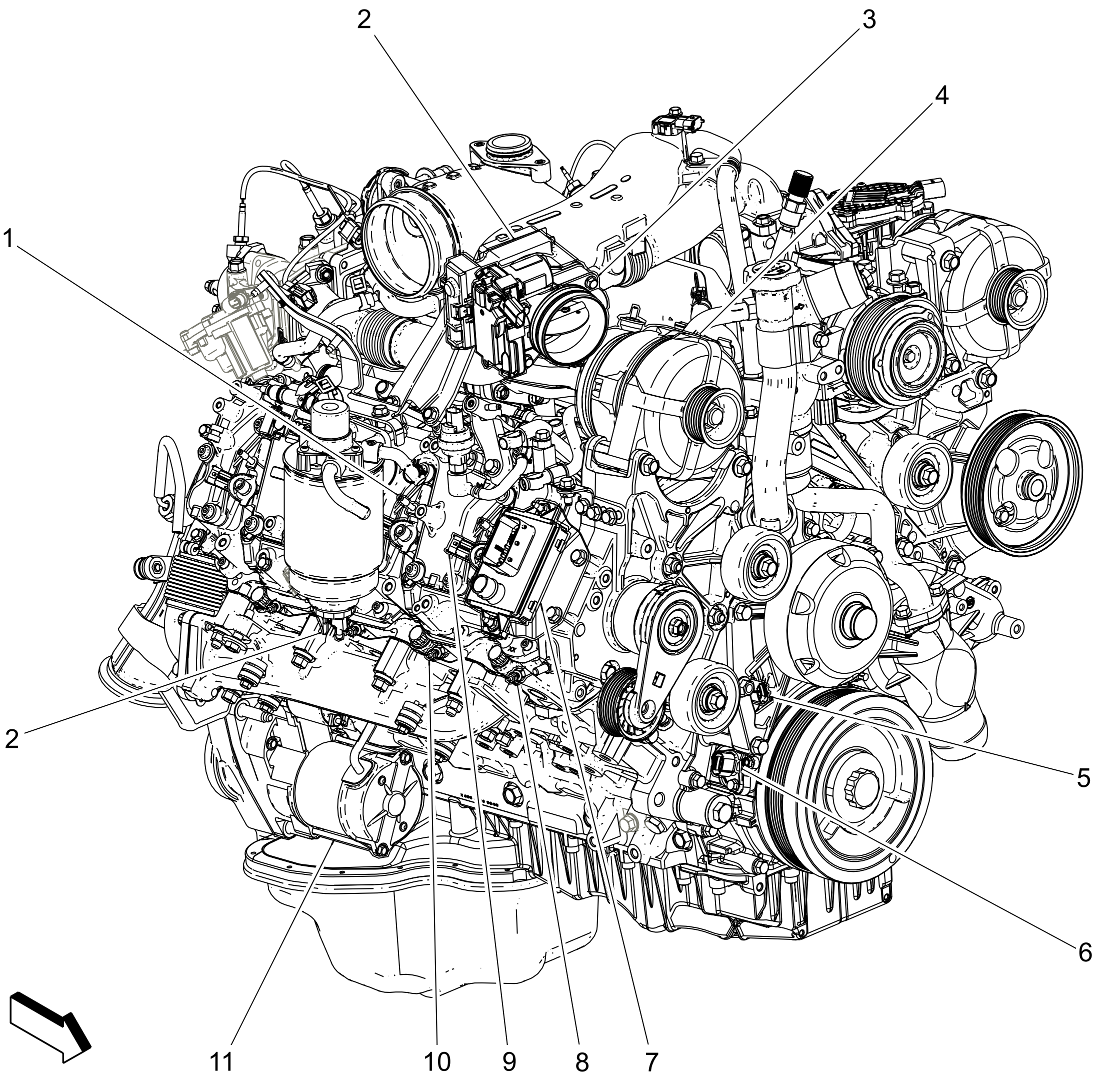
## Top of the Engine Components (L5P)



**Items**

1. Q18B Fuel Pressure Regulator 2 (L5P)
2. B34 Engine Coolant Temperature Sensor
3. Q18A Fuel Pressure Regulator 1 (L5P)
4. B48 Fuel Temperature Sensor

# Right Side of Engine Components (L5P)

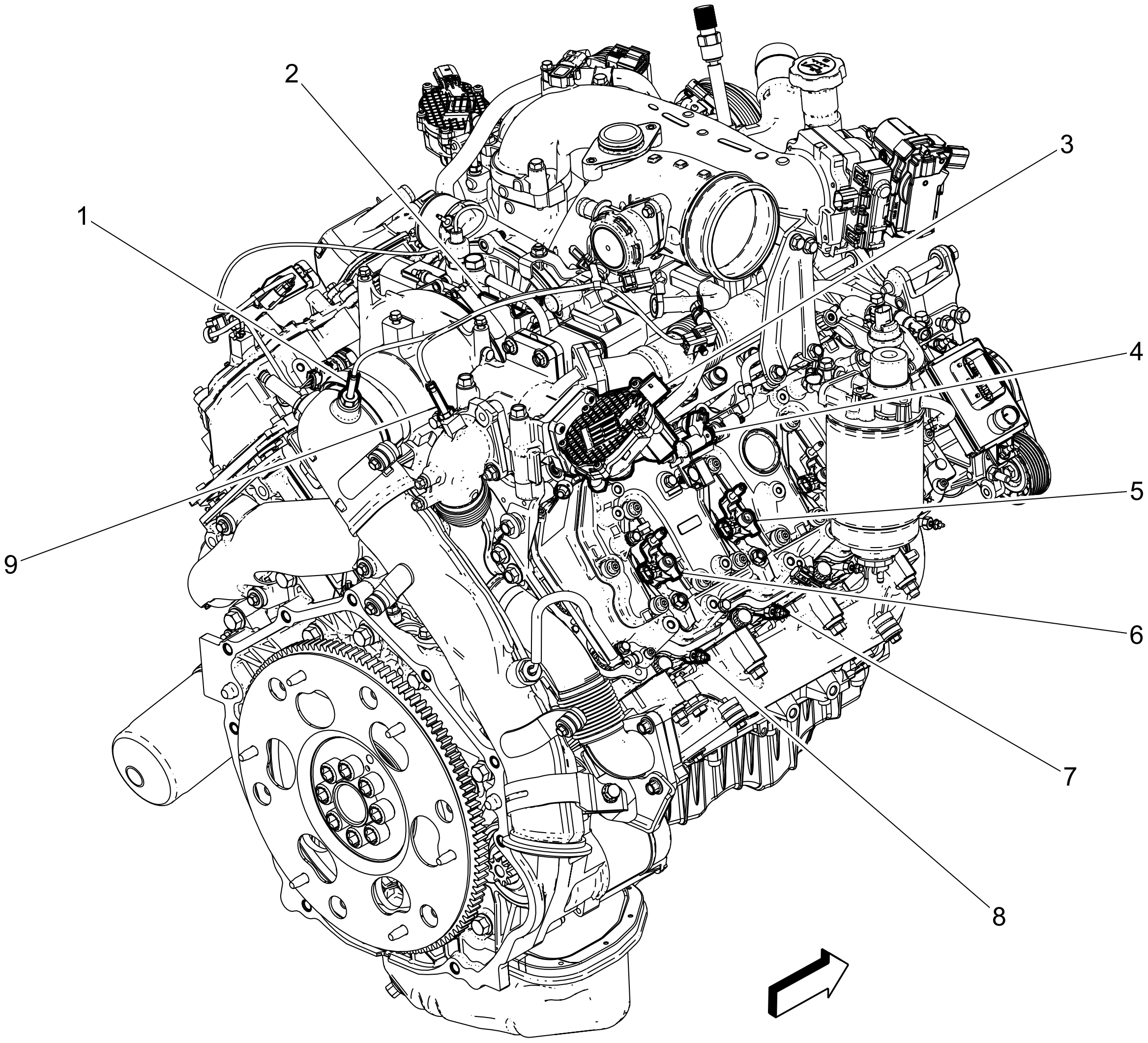


**Items**

1. Q17C Fuel Injector 3
2. B215 Fuel Filter Pressure Switch
3. E24 Intake Air Heater (L5P)
4. Q38 Throttle Body
5. G13E Generator - Auxiliary (KH5 or KHB)
6. B23 Camshaft Position Sensor
7. B26 Crankshaft Position Sensor
8. K34 Glow Plug Control Module (L5P)
9. E12A Glow Plug 1 (L5P)
10. Q17A Fuel Injector 1
11. E12C Glow Plug 3 (L5P)

11. E12C Glow Plug 3 (L5P)
12. M64 Starter Motor
13. B116 Water in Fuel Sensor

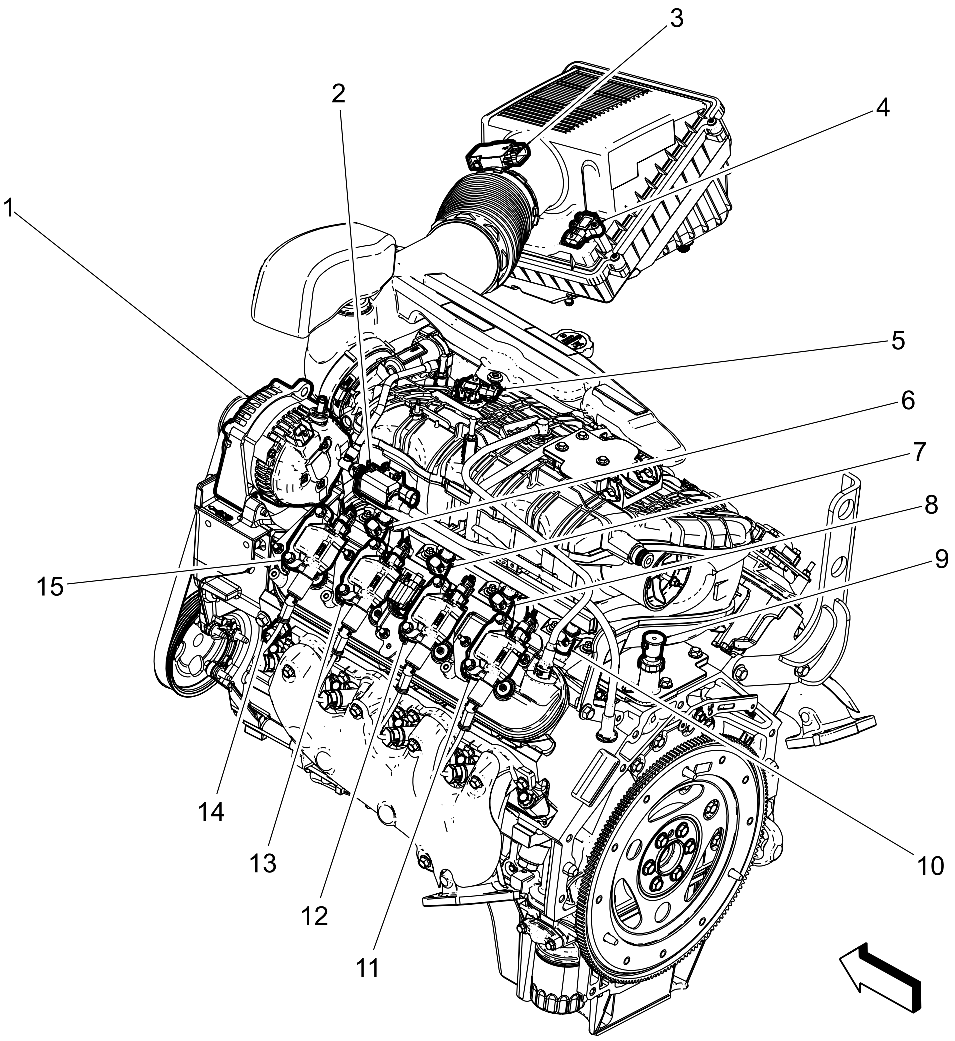
## Right Rear Side of the Engine Components (L5P)



**Items**

1. B131A Exhaust Temperature Sensor 1 (L5P)
2. Q41 Turbocharger Vane Position Control Solenoid Valve (L5P)
3. Q47 Exhaust Gas Recirculation Cooler Bypass Solenoid Valve (L5P)
4. Q67 Exhaust Aftertreatment Fuel Injector (L5P)
5. Q17E Fuel Injector 5
6. Q17G Fuel Injector 7
7. E12E Glow Plug 5 (L5P)
8. E12G Glow Plug 7 (L5P)
9. B130A Exhaust Gas Recirculation Temperature Sensor 1 (L5P)

# Left Side of Engine Components (L96)

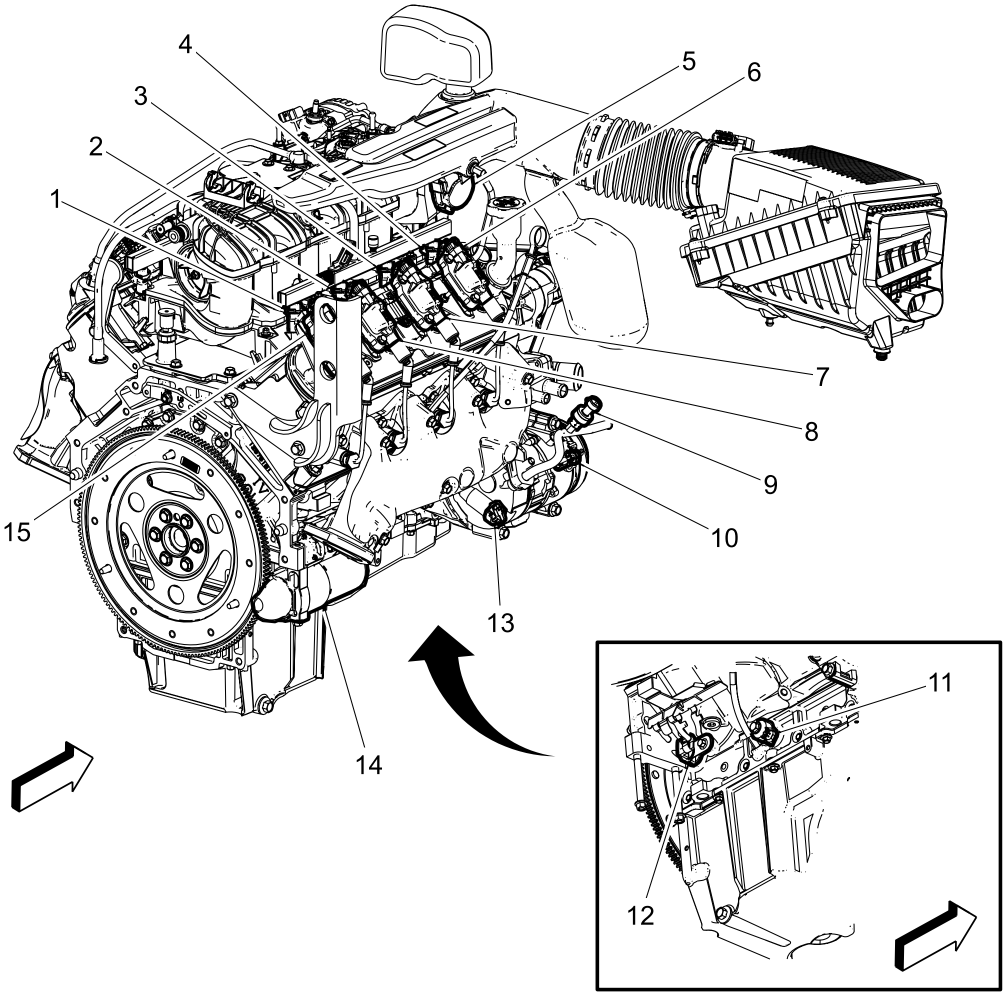


**Items**

1. G13 Generator
2. Q12 Evaporative Emission Purge Solenoid Valve (except L5P)
3. B75C Multifunction Intake Air Sensor
4. B192 Throttle Inlet Absolute Pressure Sensor (L96 or LC8)
5. B74 Manifold Absolute Pressure Sensor
6. Q17A Fuel Injector 1
7. Q17C Fuel Injector 3
8. Q17E Fuel Injector 5
9. B37B Engine Oil Pressure Sensor
10. Q17G Fuel Injector 7
11. T8G Ignition Coil 7 (L83, L86, L96 or LC8)

11. T8G Ignition Coil 7 (L83, L86, L96 or LC8)
12. T8E Ignition Coil 5 (except L5P)
13. T8C Ignition Coil 3 (except L5P)
14. B34 Engine Coolant Temperature Sensor
15. T8A Ignition Coil 1 (except L5P)

## Right Side of Engine Components (L96)



**Items**

1. Q17H Fuel Injector 8
2. Q17F Fuel Injector 6
3. Q17D Fuel Injector 4
4. Q17B Fuel Injector 2
5. Q38 Throttle Body
6. T8B Ignition Coil 2 (except L5P)
7. T8D Ignition Coil 4 (except L5P)
8. T8F Ignition Coil 6 (except L5P)
9. B1 A/C Refrigerant Pressure Sensor (C67 or CJ2)
10. Q2 A/C Compressor Clutch (C67 or CJ2)
11. B68B Knock Sensor 2 (except L5P)

11. B68B Knock Sensor 2 (except L5P)

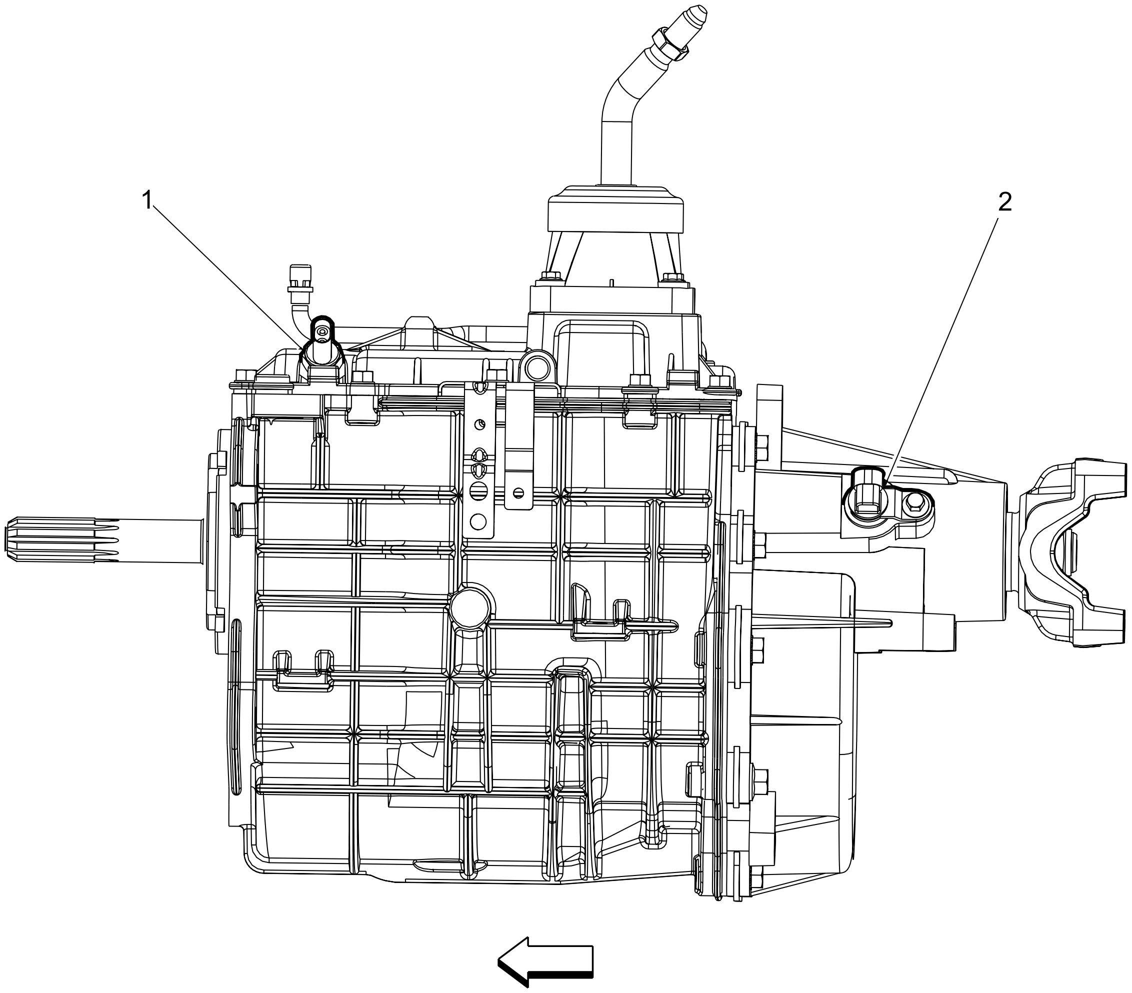
12. B26 Crankshaft Position Sensor

13. Q46 A/C Compressor Solenoid Valve (C67 or CJ2)

14. M64 Starter Motor

15. T8H Ignition Coil 8 (L83, L86, L96 or LC8)

## Manual Transmission Components (MQ7)

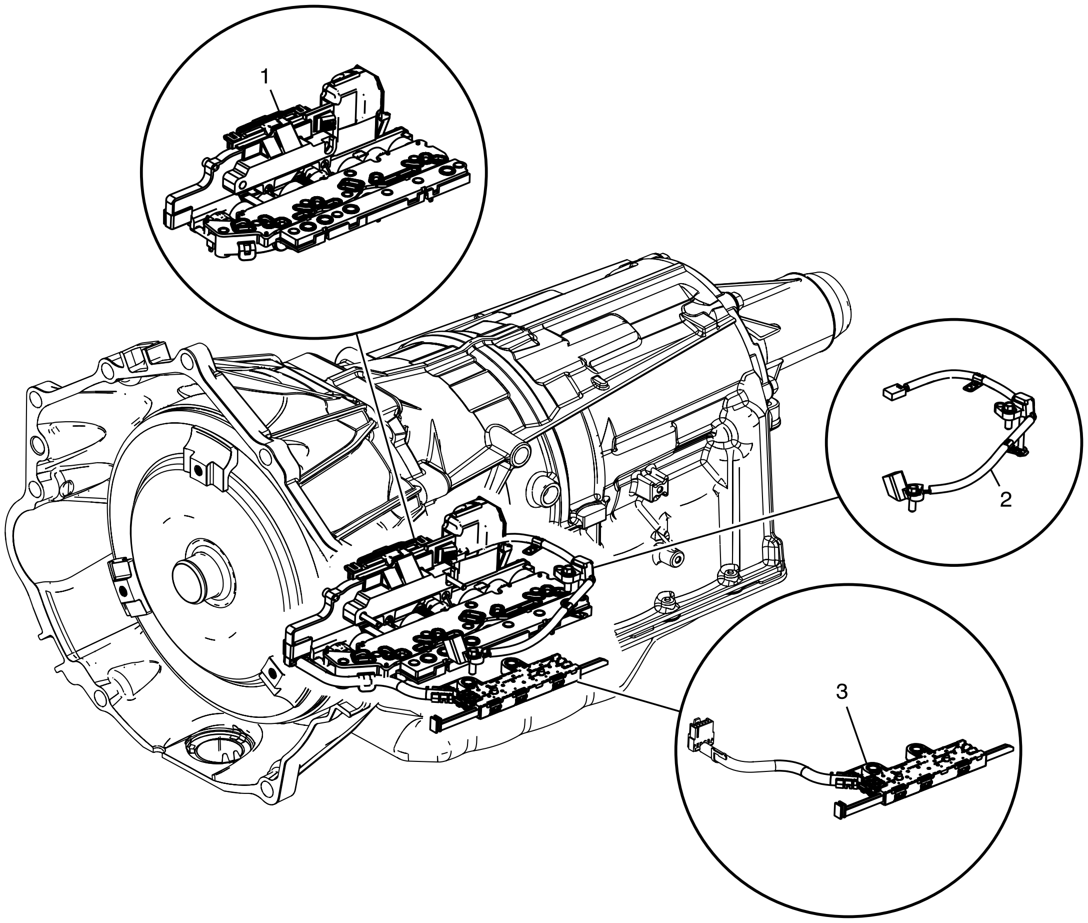


**Items**

1. B16 Backup Lamp Switch (M2P, MQ7 or MXW)

2. B115 Vehicle Speed Sensor (NQF, NQG or NQH)

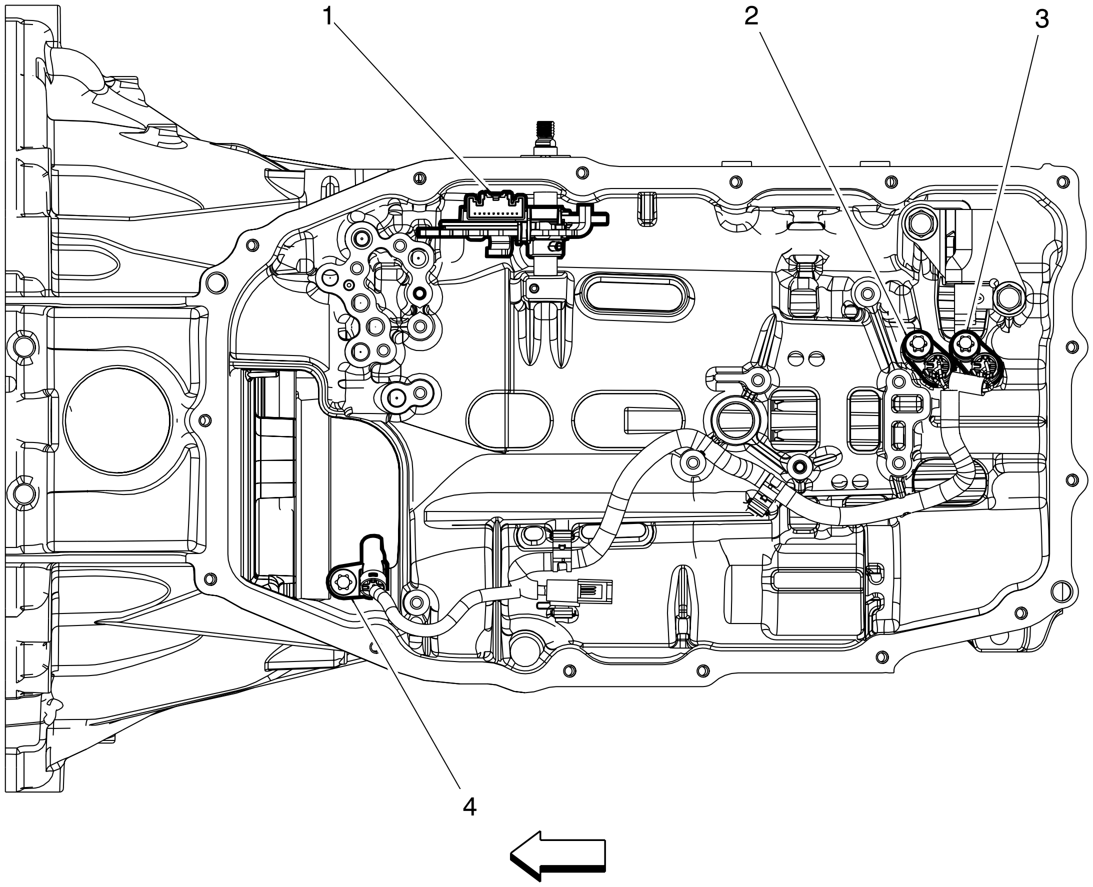
# Automatic Transmission Internal Components (MYC or MYD)



**Items**

1. Q8 Control Solenoid Valve Assembly (MYC or MYD)
2. B14A Transmission Output Shaft Speed Sensor
3. B15 Transmission Internal Mode Switch (M5U, MW7, MYC or MYD)

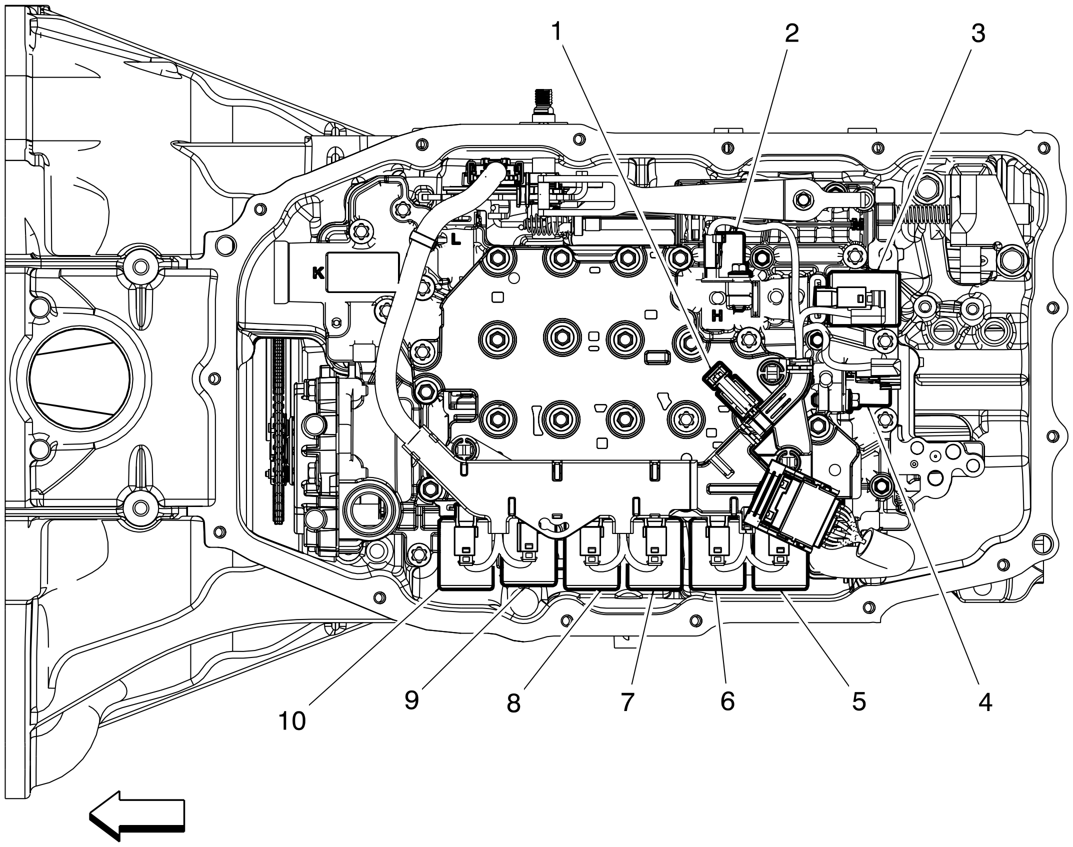
## Automatic Transmission Case Components (M5U)



**Items**

1. B15 Transmission Internal Mode Switch (M5U, MW7, MYC or MYD)
2. B14D Transmission Intermediate Shaft Speed Sensor (M5U)
3. B14A Transmission Output Shaft Speed Sensor
4. B14C Transmission Input Shaft Speed Sensor (M5U, MYC or MYD)

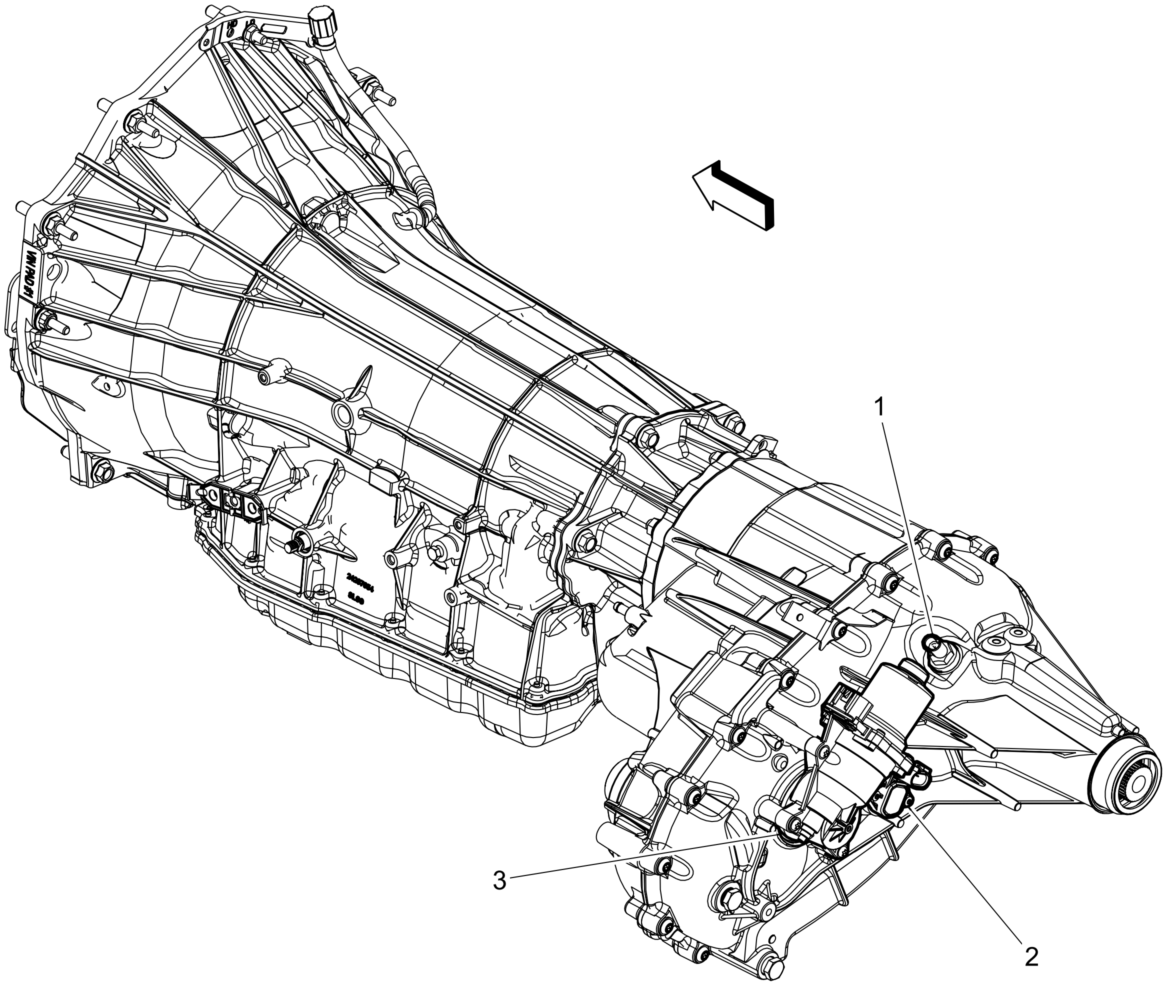
## Automatic Transmission Valve Body Components (M5U)



**Items**

1. B13 Transmission Fluid Temperature Sensor (M5U, MW7, MYC or MYD)
2. Q77H Transmission Control Solenoid Valve 8 (M5U)
3. Q77F Transmission Control Solenoid Valve 6 (M5U)
4. Q77J Transmission Control Solenoid Valve 9 (M5U)
5. Q77B Transmission Control Solenoid Valve 2 (M5U)
6. Q77A Transmission Control Solenoid Valve 1 (M5U)
7. Q77E Transmission Control Solenoid Valve 5 (M5U)
8. Q77C Transmission Control Solenoid Valve 3 (M5U)
9. Q77D Transmission Control Solenoid Valve 4 (M5U)
10. Q77G Transmission Control Solenoid Valve 7 (M5U)

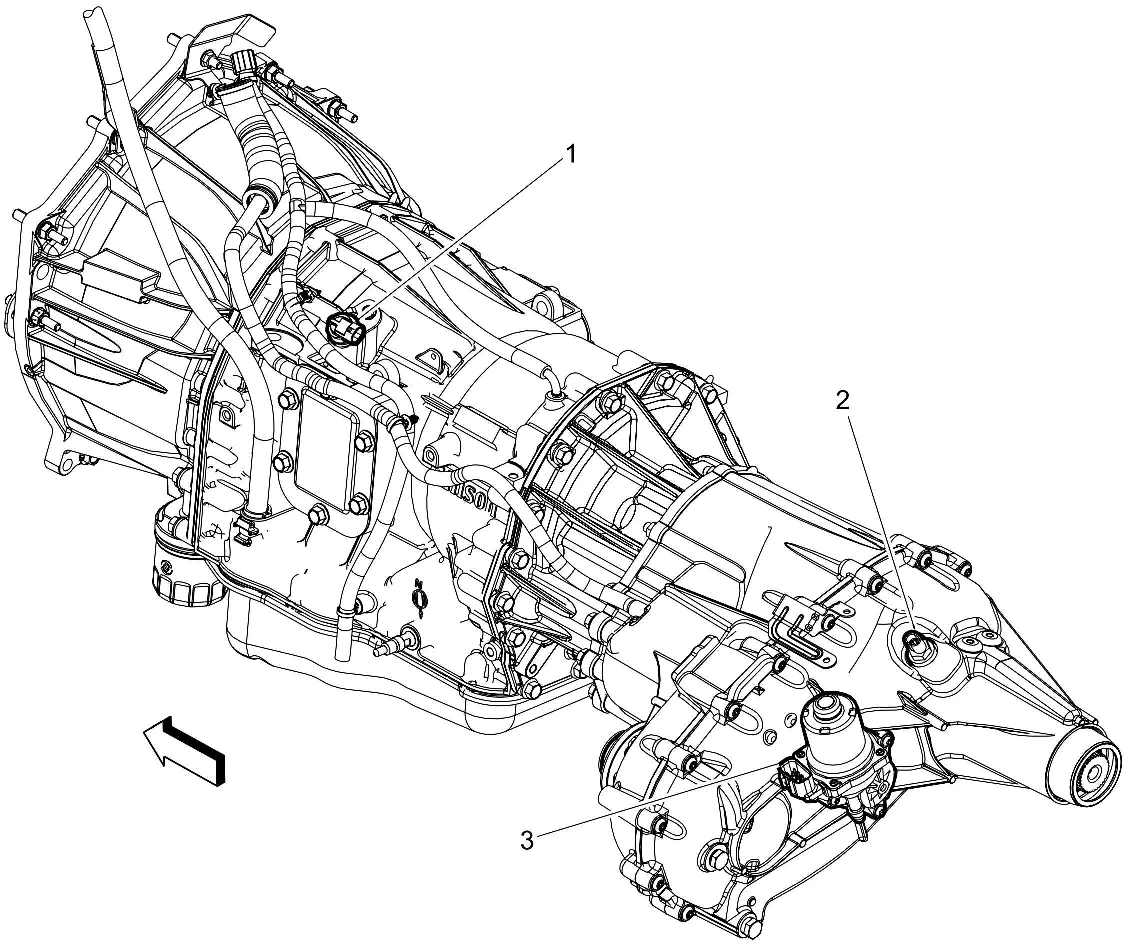
# Left Side of Transmission Components (M5X)



**Items**

1. B115 Vehicle Speed Sensor (NQF, NQG or NQH)
2. B227 Gear Position Sensor (NQH)
3. A16 Transfer Case Motor (NQF or NQH)

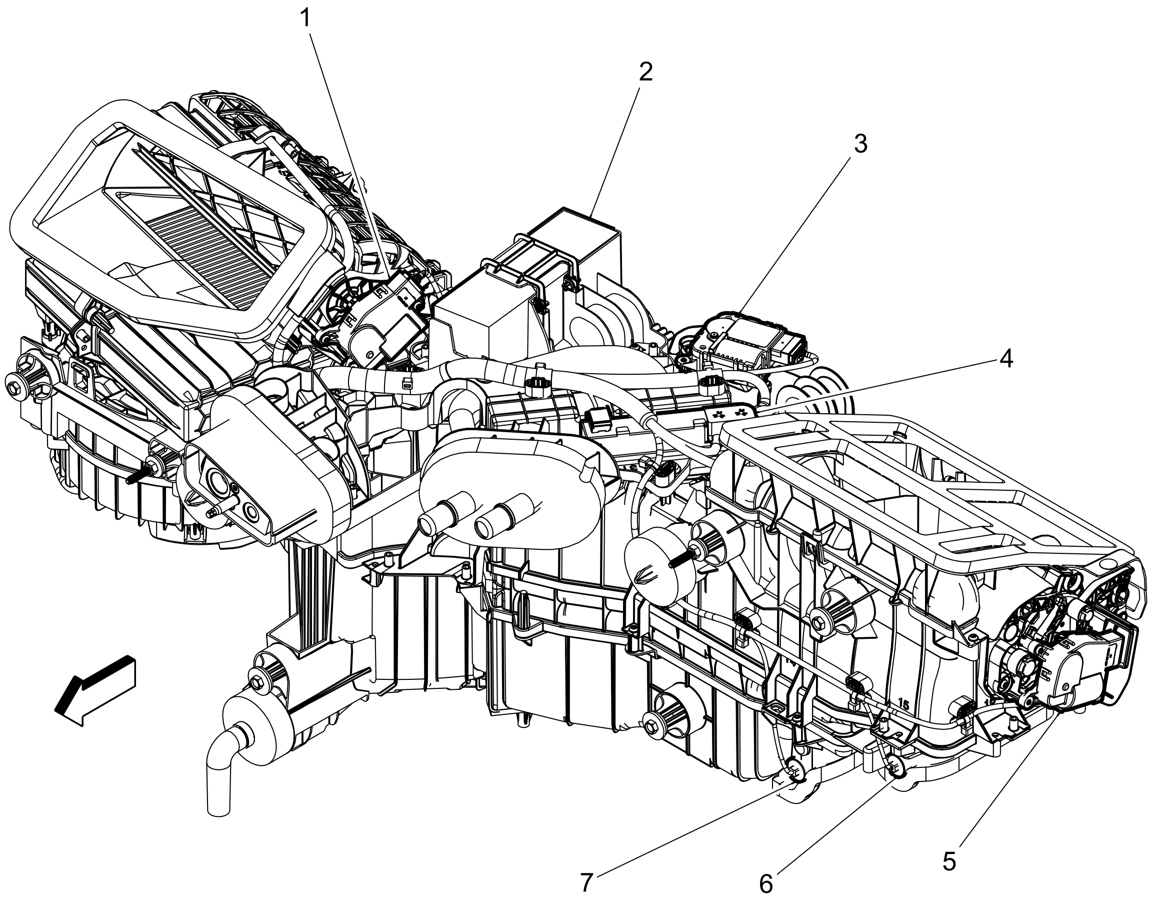
## Left Side of Transmission Components (MW7)



**Items**

1. B14B Transmission Turbine Speed Sensor  (MW7)
2. B14A Transmission Output Shaft Speed Sensor
3. A16 Transfer Case Motor  (NQF or NQH)

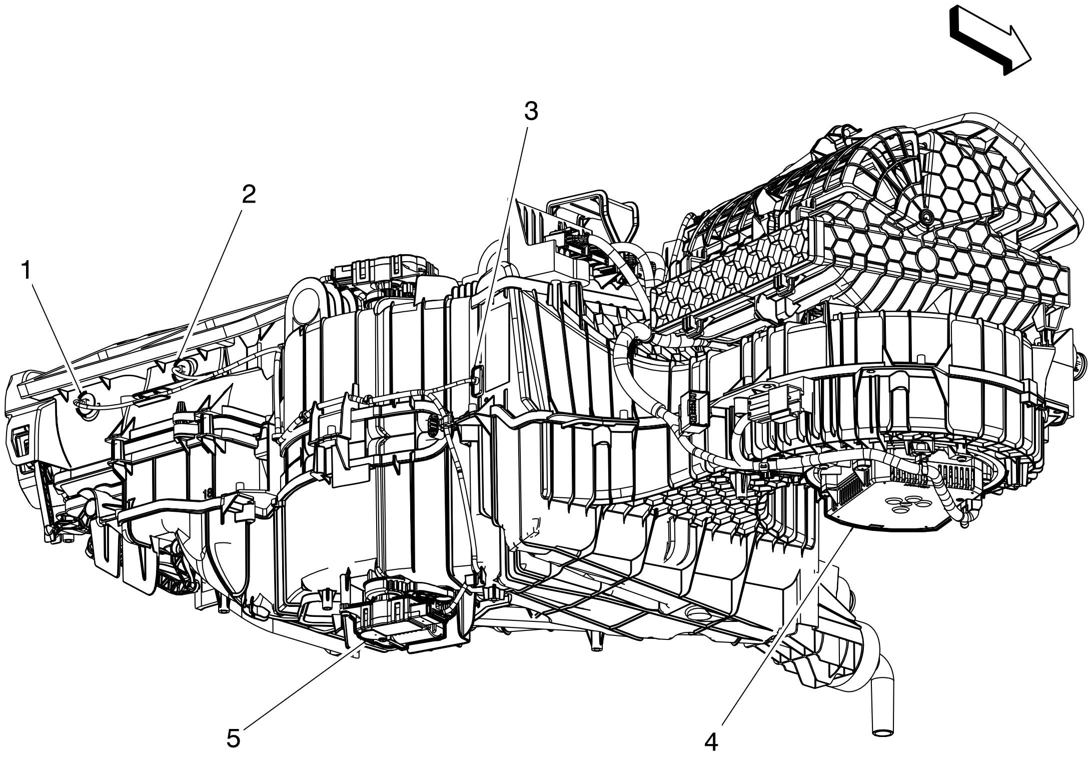
## Front of HVAC Assembly Components



**Items**

1. M4 Air Inlet Door Actuator
2. K33 HVAC Control Module
3. M6L Air Temperature Door Actuator - Left
4. E40 Electrical Auxiliary Heater (C32)
5. M37L Mode Door Actuator - Left
6. B7D Air Temperature Sensor - Duct Left Lower (CJ2)
7. B7E Air Temperature Sensor - Duct Right Lower (CJ2)

## Back of HVAC Assembly Components



**Items**

1. B7H Air Temperature Sensor - Duct Left Upper (CJ2)

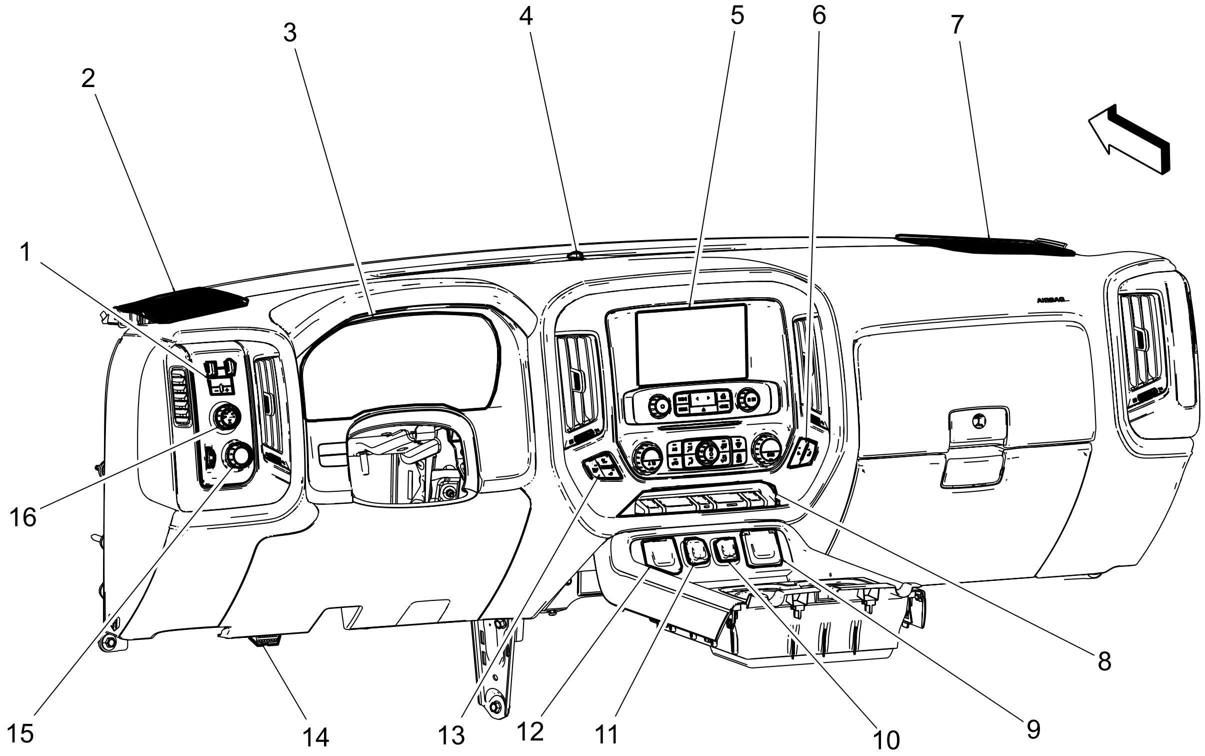
2. B7J Air Temperature Sensor - Duct Right Upper (CJ2)

3. B39 A/C Evaporator Temperature Sensor (C67 or CJ2)

4. M8 Blower Motor

5. M6R Air Temperature Door Actuator - Right (CJ2)

## Front of Instrument Panel Components



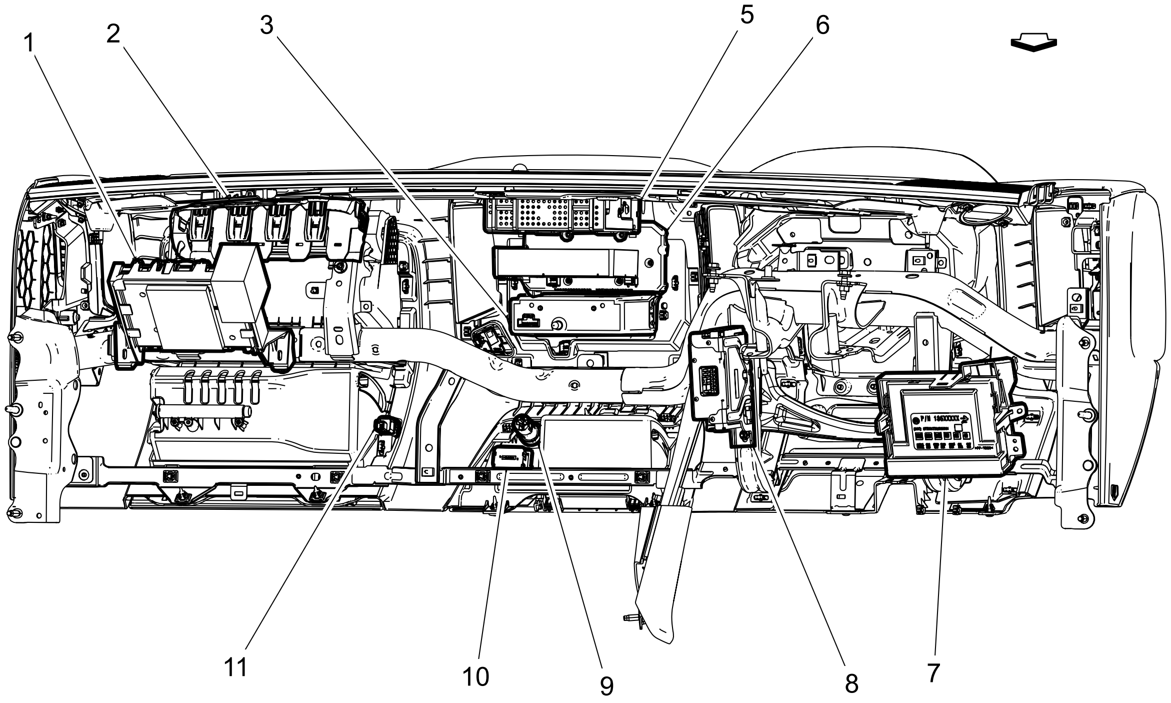
**Items**

1. S76 Trailer Brake Control Switch (JL1)
2. P19J Speaker - Left Instrument Panel (UQ3, UQA or UQG)
3. P16 Instrument Cluster
4. B10B Ambient Light/Sunload Sensor
5. P17 Info Display Module
6. S31P Seat Heating and Cooling Switch - Passenger (KA1 or KQV)
7. P19W Speaker - Right Instrument Panel (UQ3, UQA or UQG)
8. S48A Multifunction Switch - Instrument Panel
9. X81 Accessory Power Receptacle - 110V AC (KI4)
10. X80K Accessory Power Receptacle - Instrument Panel 2 (D07)
11. X80J Accessory Power Receptacle - Instrument Panel 1 (D07)
12. X92 USB Receptacle
13. S31D Seat Heating and Cooling Switch - Driver (KA1 or KQV)
14. X84 Data Link Connector
15. S30 Headlamp Switch

15. S30 Headlamp Switch

16. S77 Transfer Case Shift Control Switch

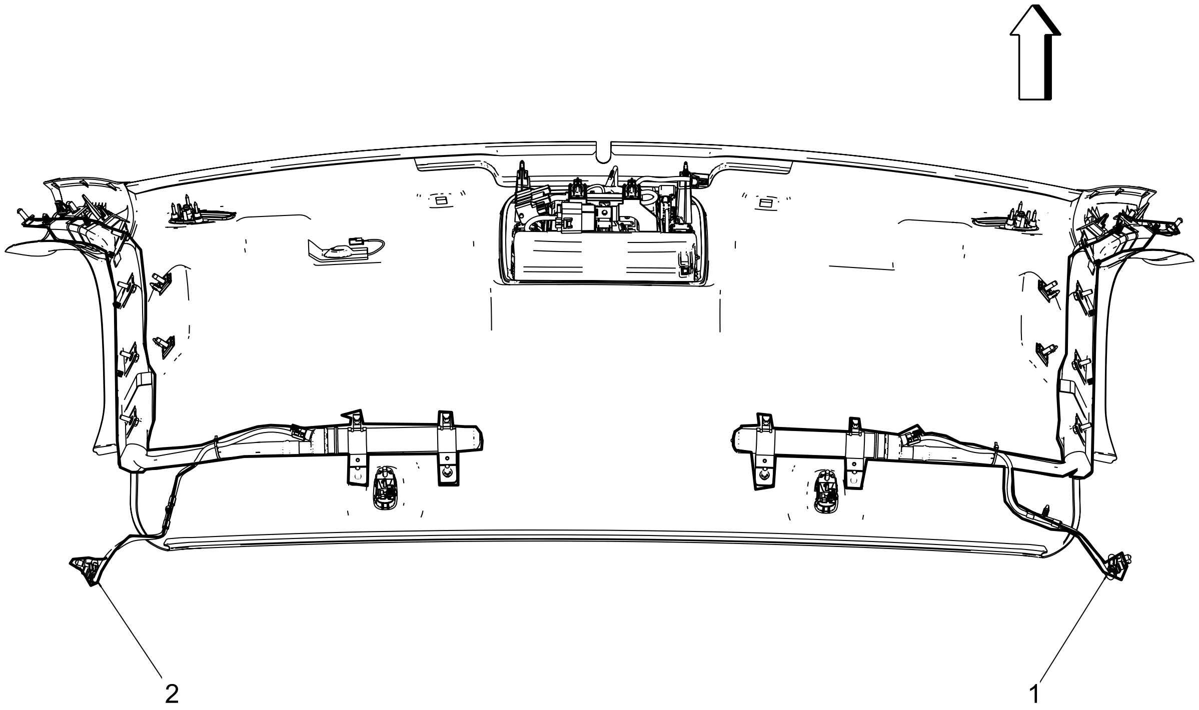
## Rear of Instrument Panel Components



**Items**

1. K74 Human Machine Interface Control Module (IO5 or IO6)
2. F101 Passenger Instrument Panel Air Bag
3. A33 Media Disc Player (TG5/U42/D07)
5. A11 Radio
6. K73 Telematics Communication Interface Control Module (UE1)
7. K9 Body Control Module
8. T1 Accessory DC/AC Power Inverter Module (KI4 or KI5)
9. X80J Accessory Power Receptacle - Instrument Panel 1 (D07)
10. X81 Accessory Power Receptacle - 110V AC (KI4)
11. S135 Rollover Protection Disable Switch (C9I)

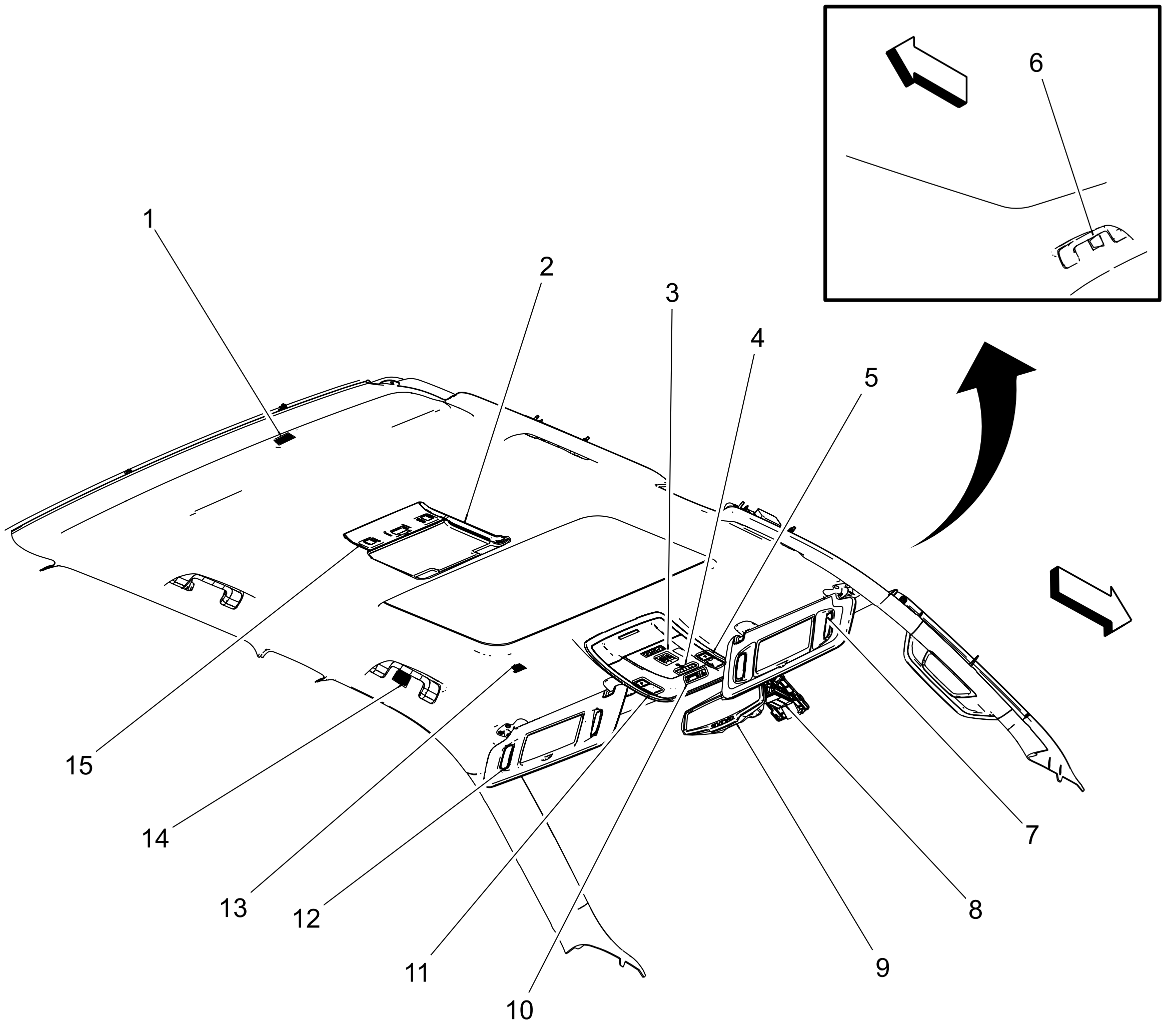
## Roof Rail Air Bags



**Items**

1. F105R Roof Rail Air Bag - Right (AY0)
2. F105L Roof Rail Air Bag - Left (AY0)

## Headliner Components



**Items**

1. B77R Radio Volume Compensator Interior Noise Microphone - Rear (NKC)
2. P22A Video Display - 2nd Row (U42)
3. S72 Sunroof Switch (CF5)
4. S25 Garage Door Opener (UG1)
5. E37ER Dome/Reading Lamps - Front Overhead Console Right
6. B77RF Radio Volume Compensator Interior Noise Microphone - Right Front (NKC)
7. E31R Sunshade Mirror Lamp - Right (DH6)
8. K109 Frontview Camera Module
9. A10 Inside Rearview Mirror (DD8 or UE1)
10. P14 Passenger Air Bag Disabled Indicator
11. E37EL Dome/Reading Lamps - Front Overhead Console Left

11. E37EL Dome/Reading Lamps - Front Overhead Console Left

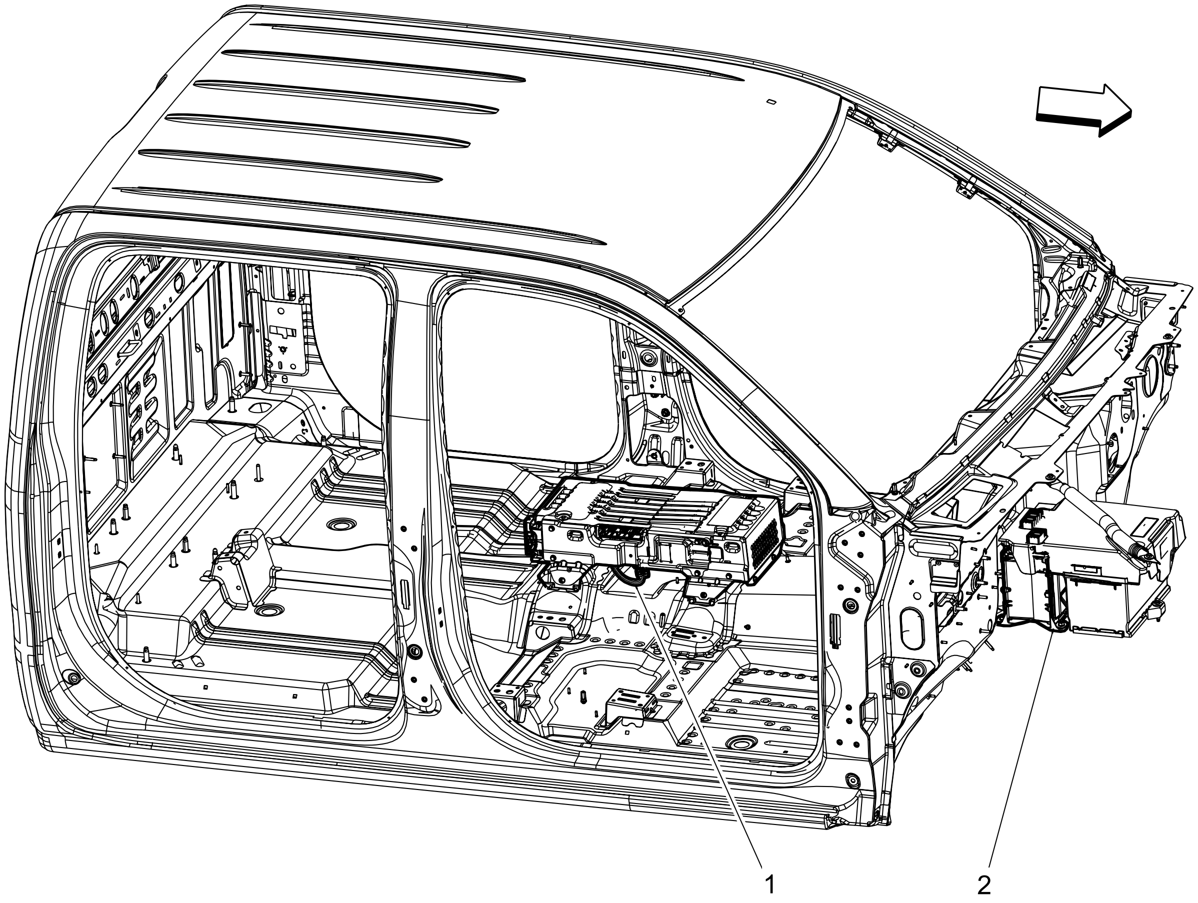
12. E31L Sunshade Mirror Lamp - Left (DH6)

13. B24 Cellular Phone Microphone (IO5, IO6 or UE1)

14. B77LF Radio Volume Compensator Interior Noise Microphone - Left Front (NKC)

15. E37B Dome/Reading Lamps - 2nd Row (Extended or Crew Cab without U42)

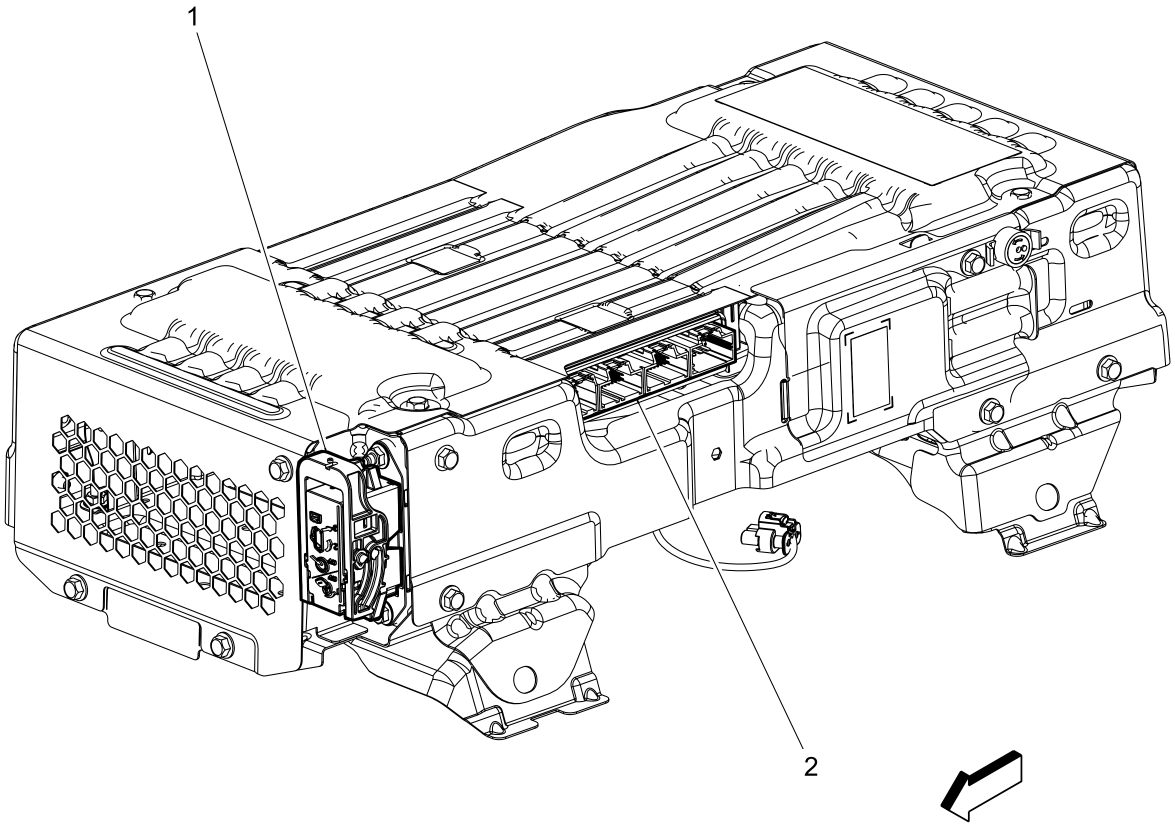
## Front Center of the Passenger Compartment Components (HP5)



**Items**

1. A4 Hybrid/EV Battery Pack (HP5)

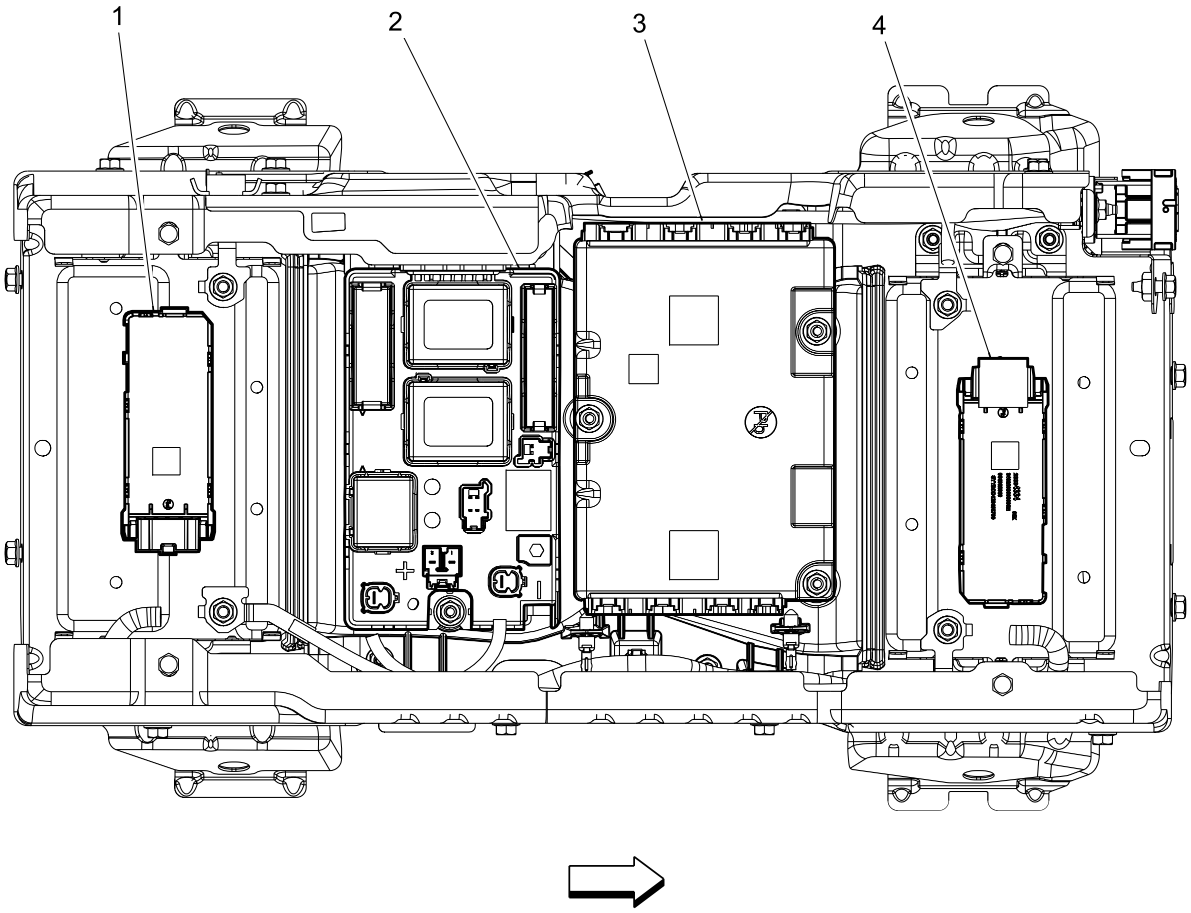
2. K59 Starter/Generator Control Module (HP5)



**Items**

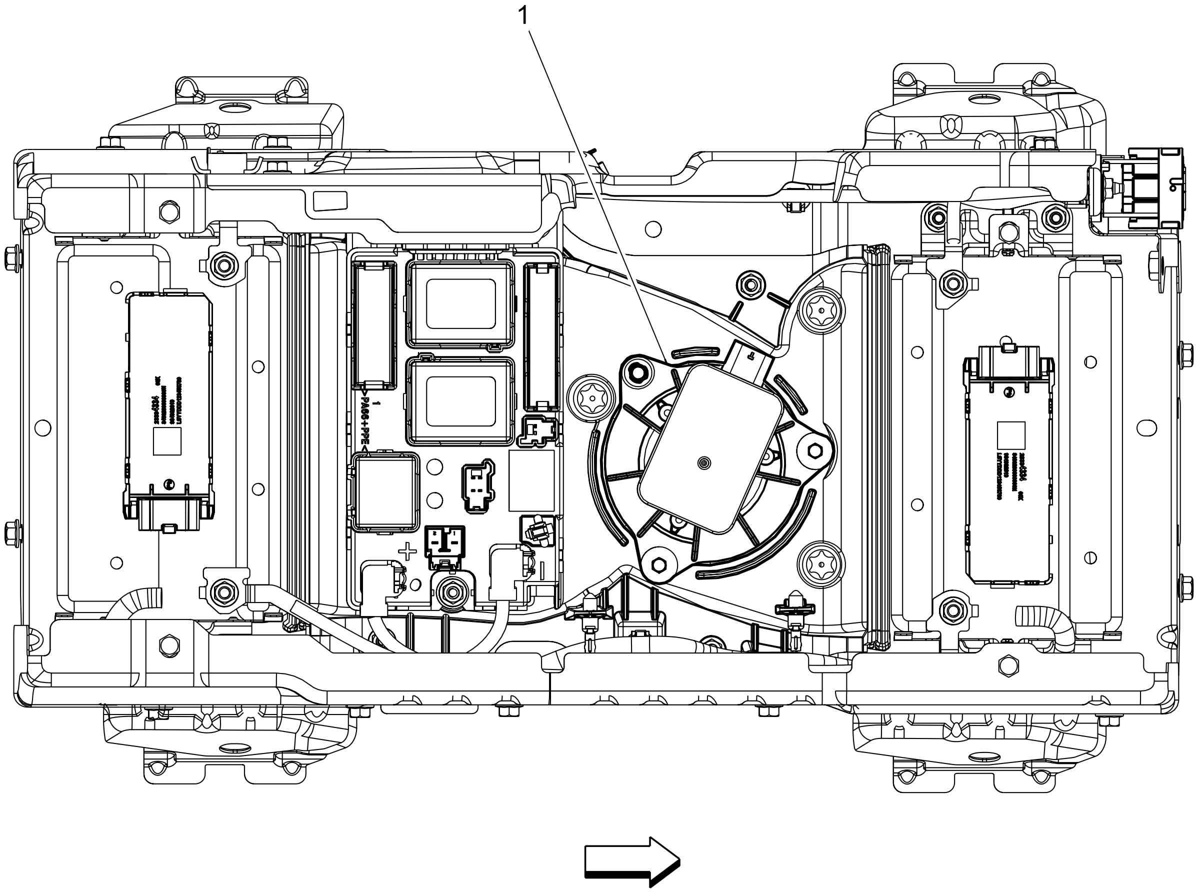
1. X21 Manual Service Disconnect Receptacle (HP5)
2. K114B Hybrid/EV Powertrain Control Module 2 (HP5)

# Hybrid/EV Battery Pack (2 of 3)



**Items**

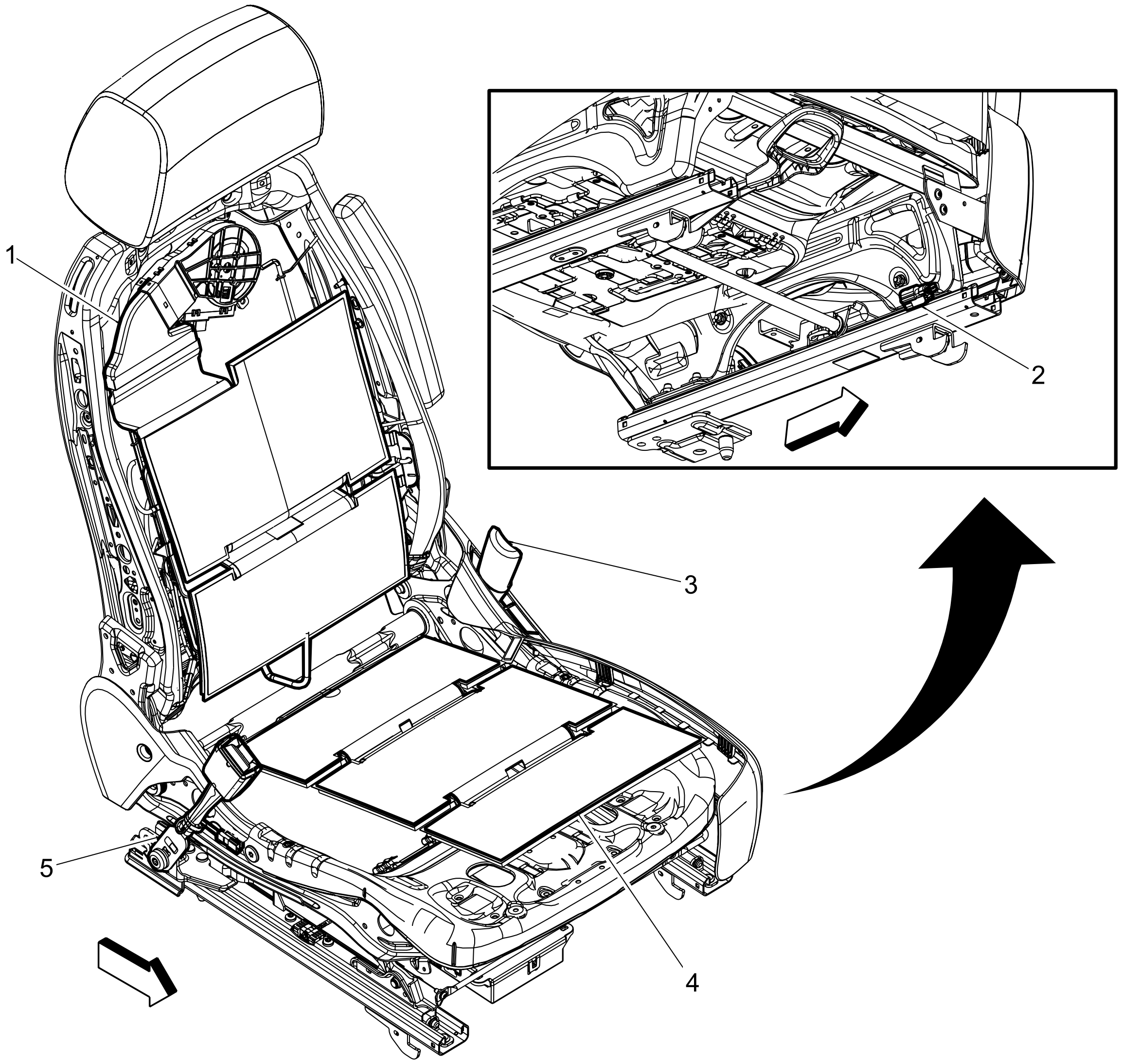
1. K112A Hybrid/EV Battery Interface Control Module 1 (HP5)
2. A28 Hybrid/EV Battery Contactor Assembly (HP5)
3. K114 Hybrid/EV Powertrain Control Module (HP5)
4. K112B Hybrid/EV Battery Interface Control Module 2 (HP5)



**Items**

1. G14 Hybrid/EV Battery Pack Cooling Fan (HP5)

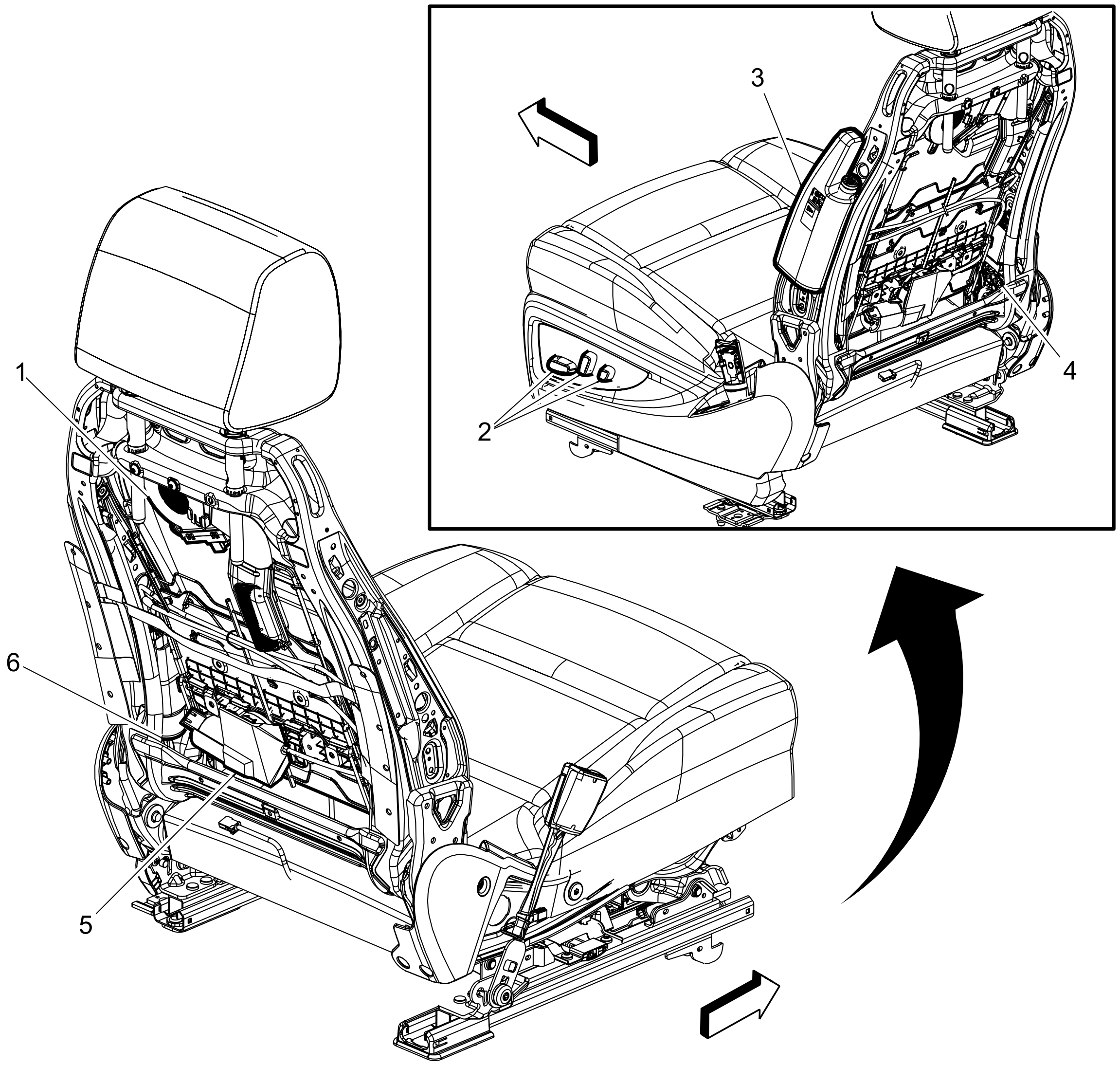
## Front of Driver Seat Components



**Items**

1. E14A Seat Heating Element - Driver Back (KA1/KQV)
2. B62D Seat Position Sensor - Driver (1500)
3. F113D Seat Belt Anchor Pretensioner - Driver
4. E14B Seat Heating Element - Driver Cushion (KA1/KQV)
5. B153D Seat Belt Buckle - Driver

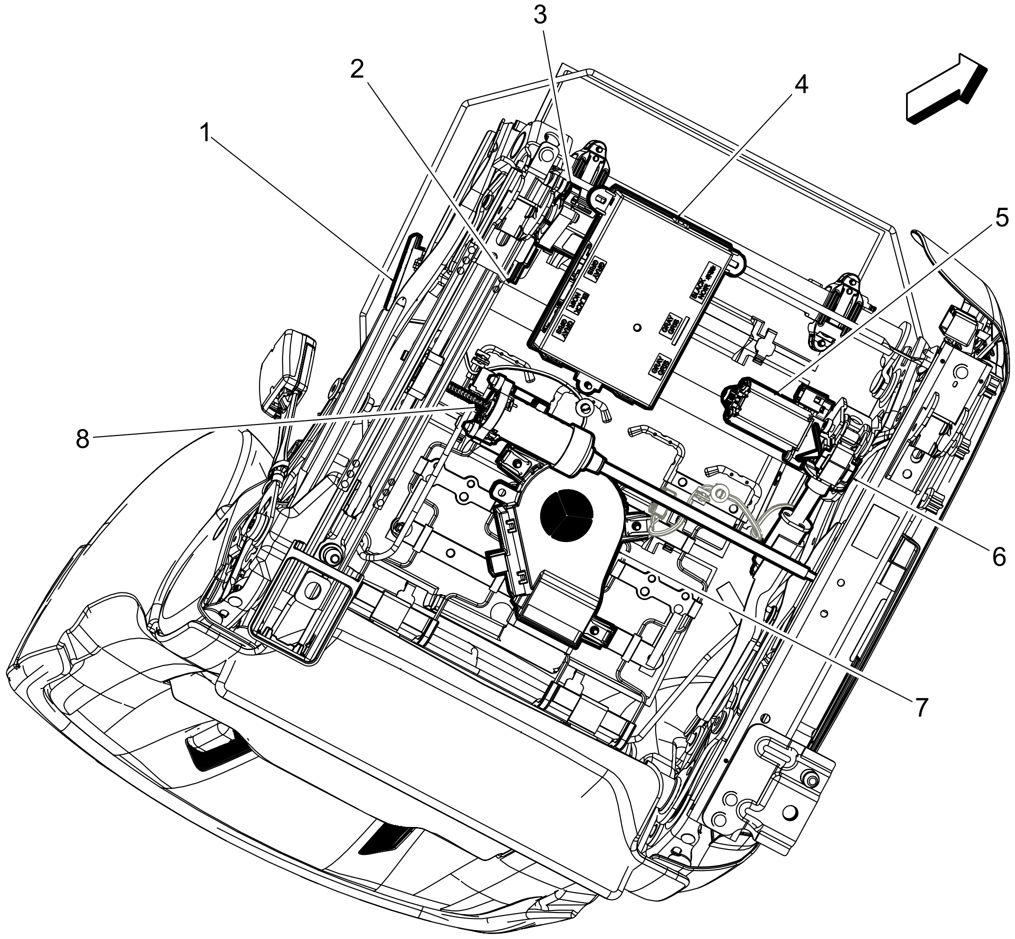
## Back of Driver Seat Components



**Items**

1. M73A Seat Blower Motor - Driver Back (KQV)
2. S64D Seat Adjuster Switch - Driver
3. F106D Seat Side Air Bag - Driver (AY0)
4. M56D Seat Recline Motor - Driver
5. M52D Seat Lumbar Support Horizontal Motor - Driver
6. A14D Seat Lumbar Support Pump - Driver (GAJ or Y91)

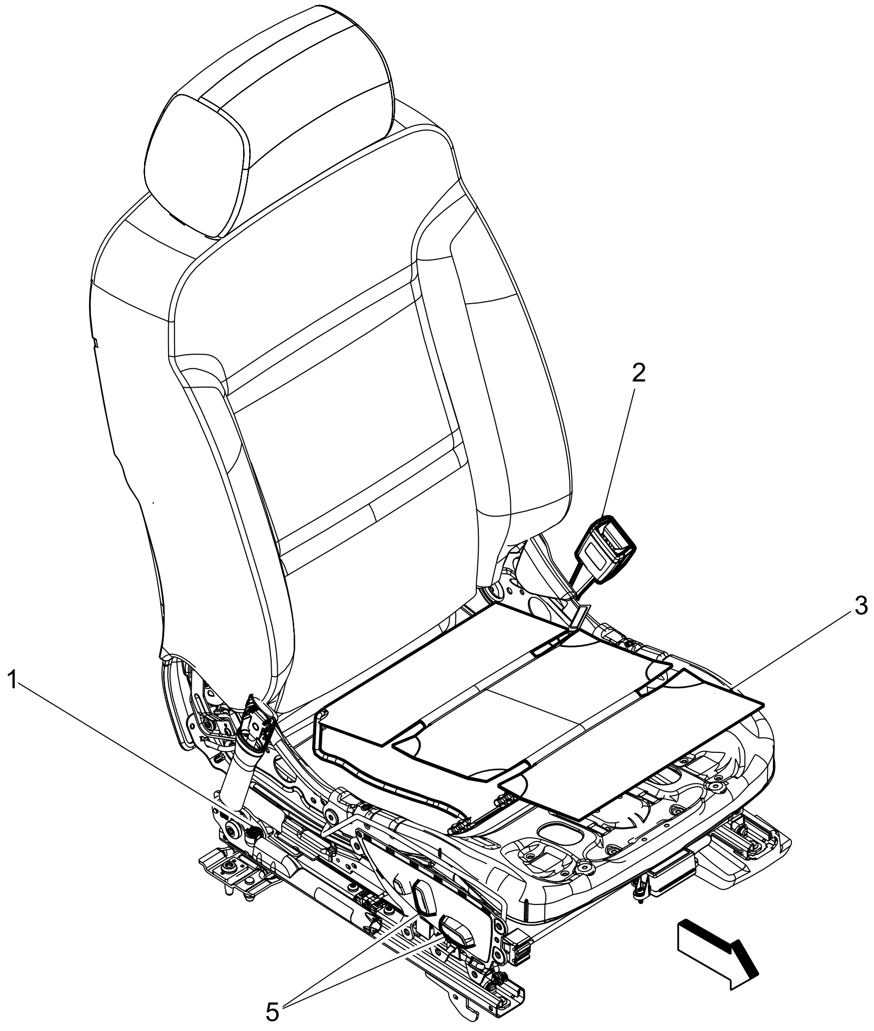
## Bottom of Driver Seat Components



**Items**

1. P45LR Seat Haptic Movement Motor - Driver Left Rear (UEU or UFL)
2. B62D Seat Position Sensor - Driver (1500)
3. M51D Seat Horizontal Motor - Driver
4. K40 Seat Memory Control Module (A45)
5. M50D Seat Front Vertical Motor - Driver
6. P45RR Seat Haptic Movement Motor - Driver Right Rear (UEU or UFL)
7. M73C Seat Blower Motor - Driver Cushion (KQV)
8. M55D Seat Rear Vertical Motor - Driver

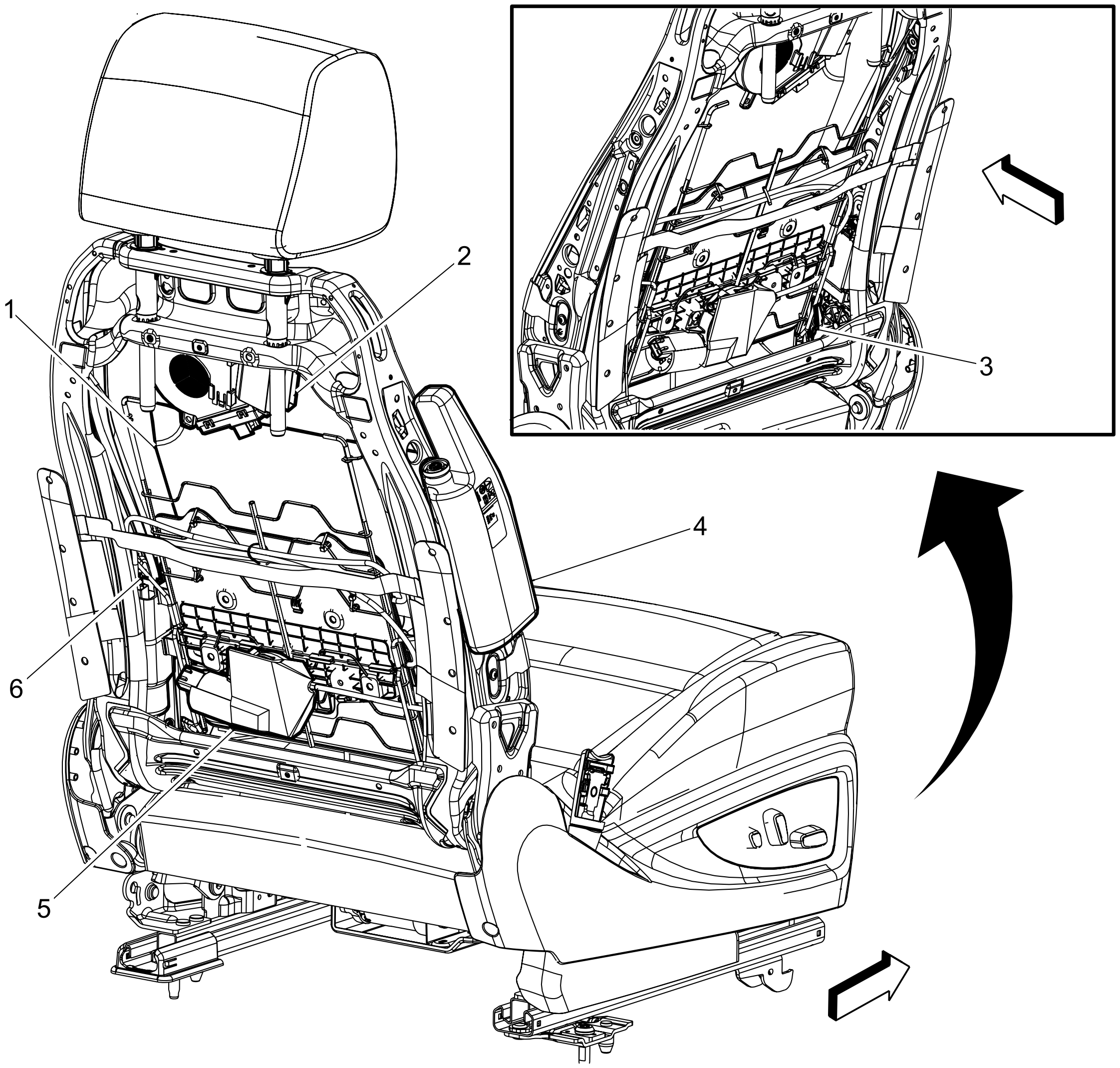
## Front of Passenger Seat Components



**Items**

1. F113P Seat Belt Anchor Pretensioner - Passenger
2. B153P Seat Belt Buckle - Passenger
3. E14D Seat Heating Element - Passenger Cushion (KA1/KQV)
5. S64P Seat Adjuster Switch - Passenger

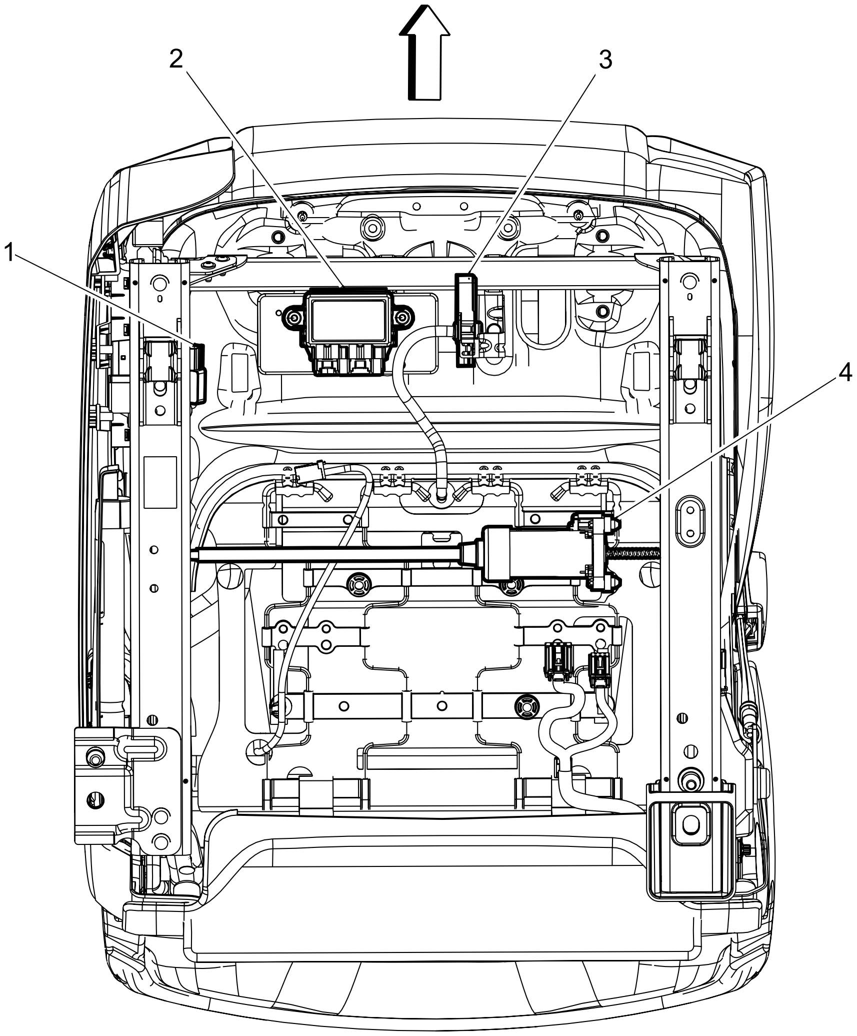
## Back of Passenger Seat Components



**Items**

1. E14C Seat Heating Element - Passenger Back (KA1/KQV)
2. M73B Seat Blower Motor - Passenger Back (KQV)
3. M56P Seat Recline Motor - Passenger
4. F106P Seat Side Air Bag - Passenger (AY0)
5. M52P Seat Lumbar Support Horizontal Motor - Passenger
6. A14P Seat Lumbar Support Pump - Passenger (GAJ or Y91)

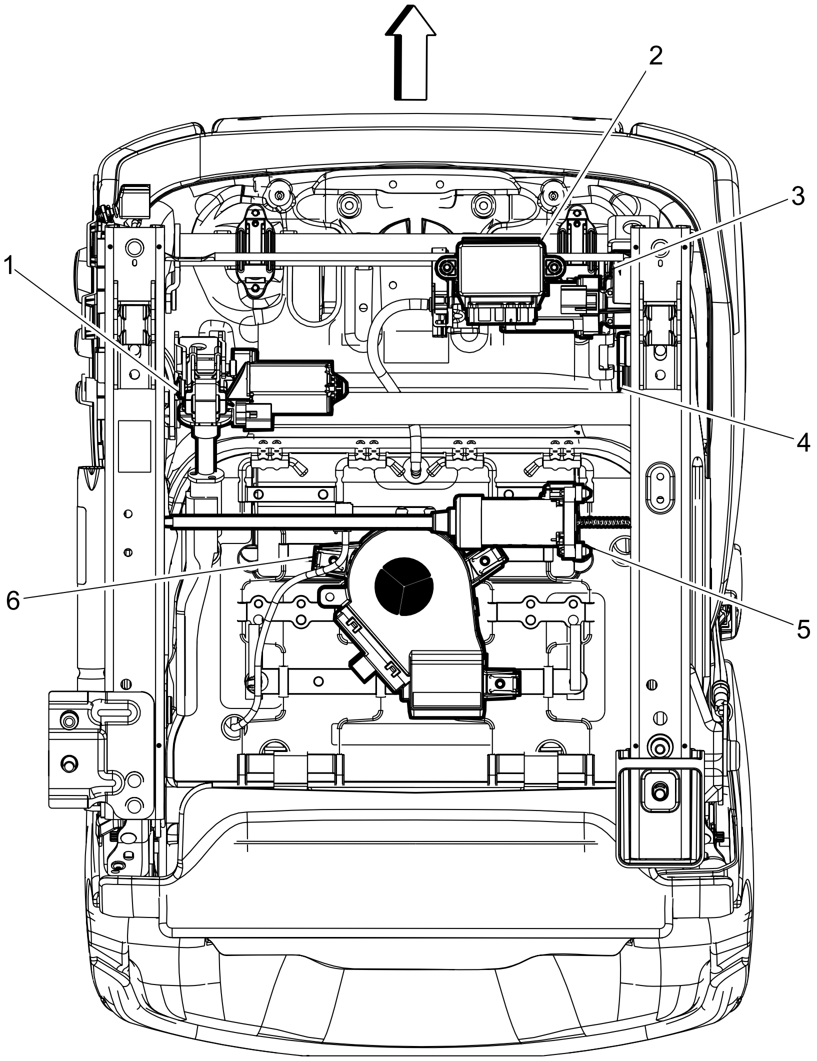
## Bottom of Passenger Seat Components (without GAJ or Y91)



**Items**

1. B62P Seat Position Sensor - Passenger (1500)
2. K29 Seat Heating Control Module (KA1 without KQV)
3. K85 Passenger Presence Module (AL0)
4. M51P Seat Horizontal Motor - Passenger

## Bottom of Passenger Seat Components (GAJ or Y91)

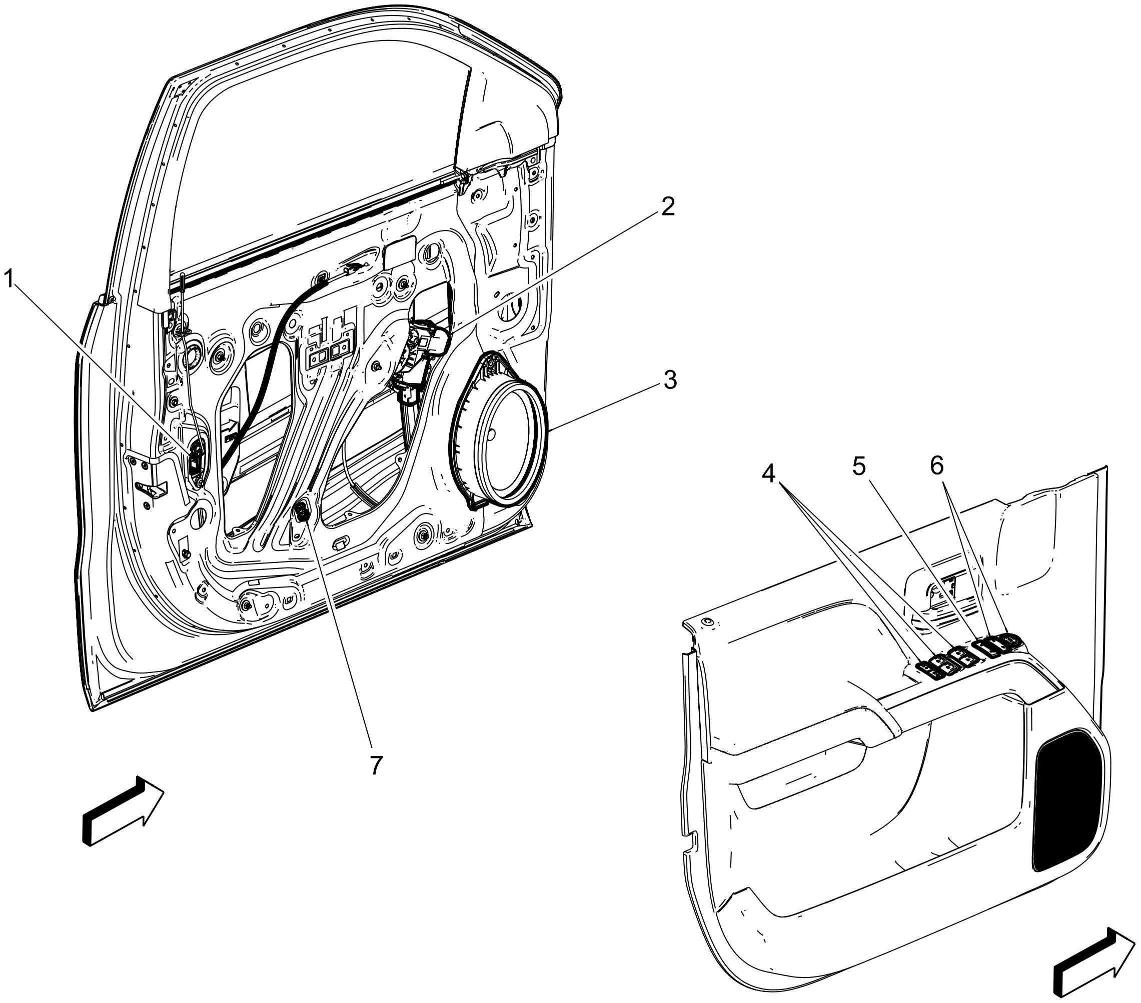


**Items**

1. M55P Seat Rear Vertical Motor - Passenger
2. K29 Seat Heating Control Module (KA1 without KQV)
3. M50P Seat Front Vertical Motor - Passenger
4. B62P Seat Position Sensor - Passenger (1500)
5. M51P Seat Horizontal Motor - Passenger
6. M73D Seat Blower Motor - Passenger Cushion (KQV)

## Door Component Views

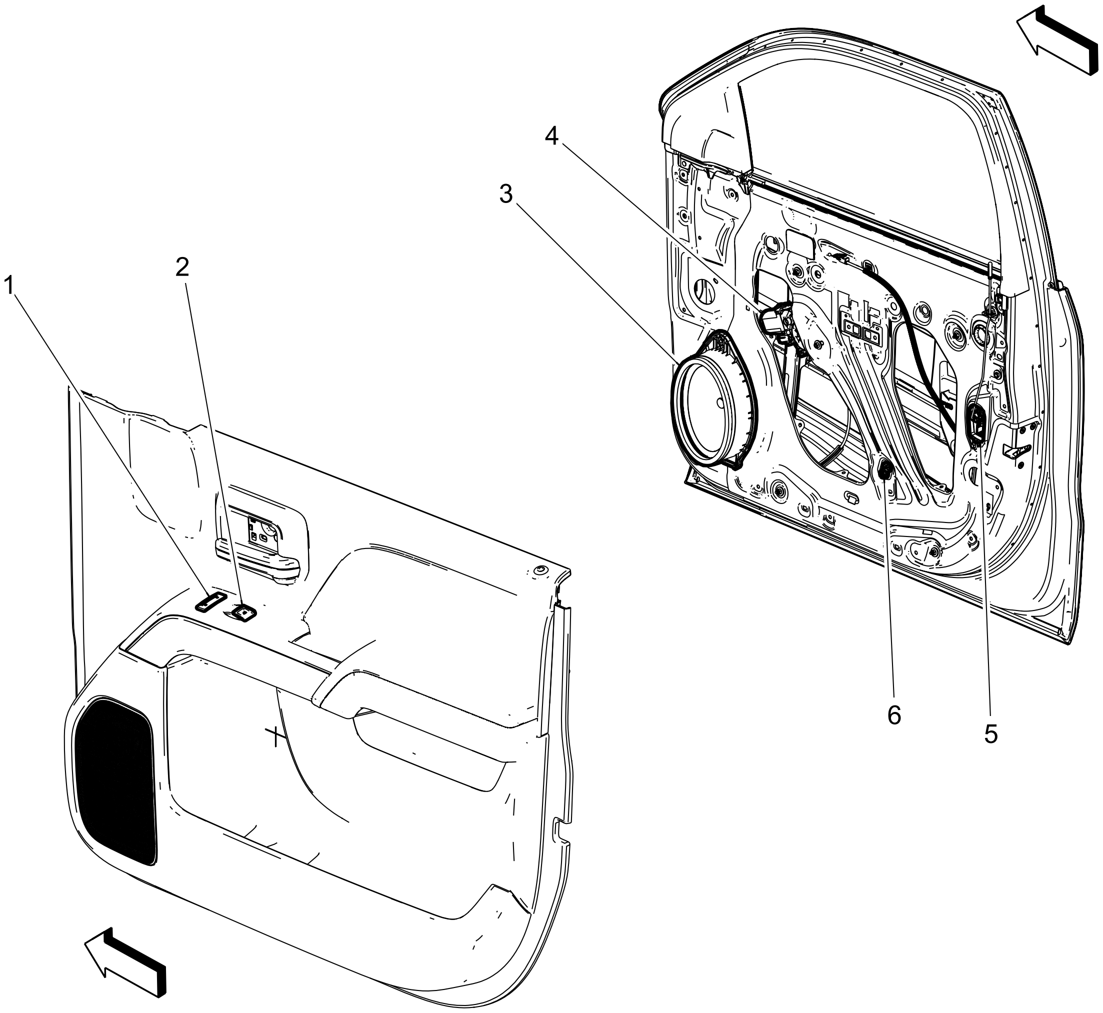
### Driver Door Components



**Items**

1. A23D Door Latch Assembly - Driver
2. M74D Window Motor - Driver (A31)
3. P19AG Speaker - Left Front Door
4. S79D Window Switch - Driver (A31)
5. S13D Door Lock Switch - Driver
6. S52 Outside Rearview Mirror Switch (DL3, DL8, DPN or DQS)
7. B63LF Side Impact Sensor - Left Front (AY0)

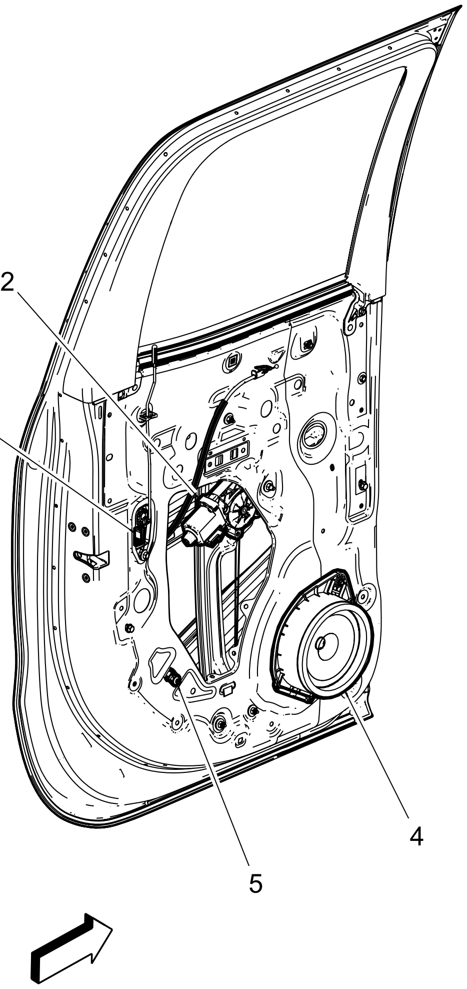
## Passenger Door Components

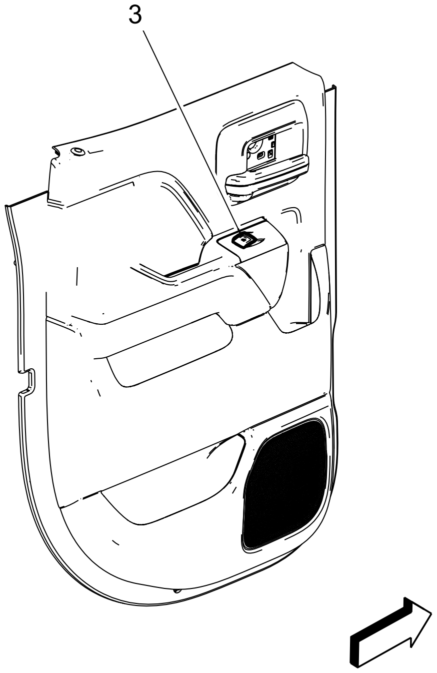


**Items**

1. S13P Door Lock Switch - Passenger
2. S79P Window Switch - Passenger (A31)
3. P19AH Speaker - Right Front Door
4. M74P Window Motor - Passenger (A31)
5. A23P Door Latch Assembly - Passenger
6. B63RF Side Impact Sensor - Right Front (4 Door with AY0)

## Left Rear Door Components

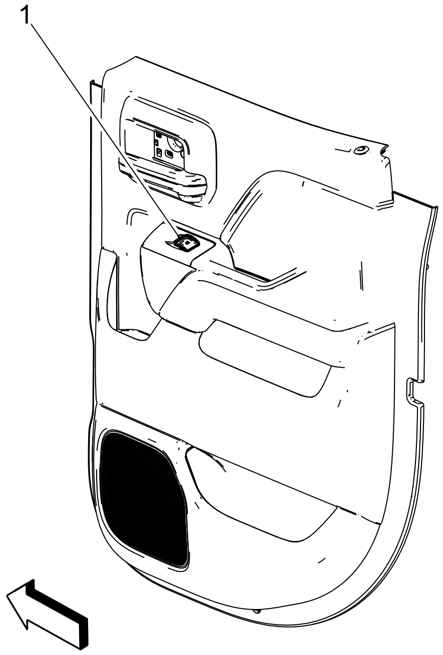


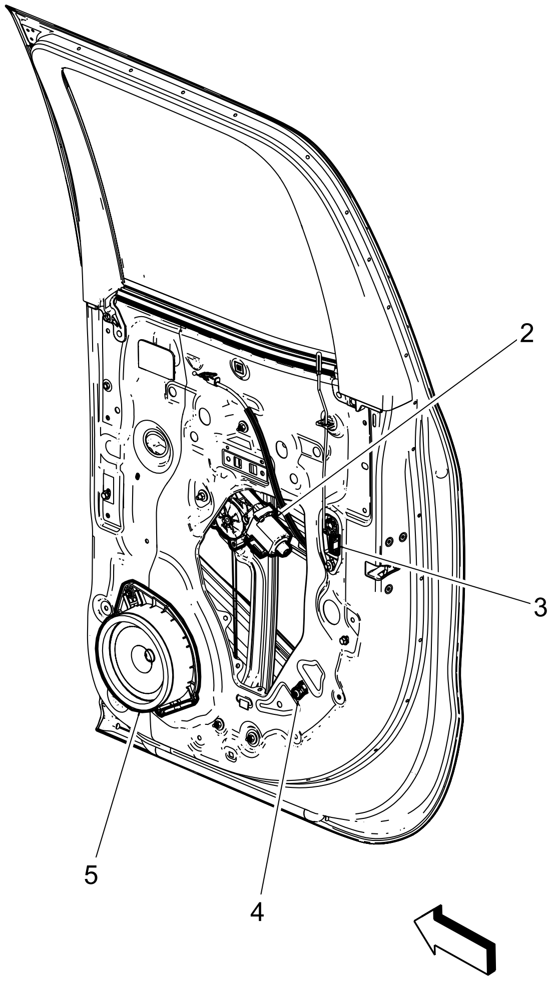


**Items**

1. A23LR Door Latch Assembly - Left Rear (Extended Cab or Crew Cab)
2. M74LR Window Motor - Left Rear (Extended or Crew Cab)
3. S79LR Window Switch - Left Rear (Extended or Crew Cab)
4. P19AL Speaker - Left Rear Door (Extended or Crew Cab)
5. B63LR Side Impact Sensor - Left Rear (4 Door with AY0)

## Right Rear Door Components

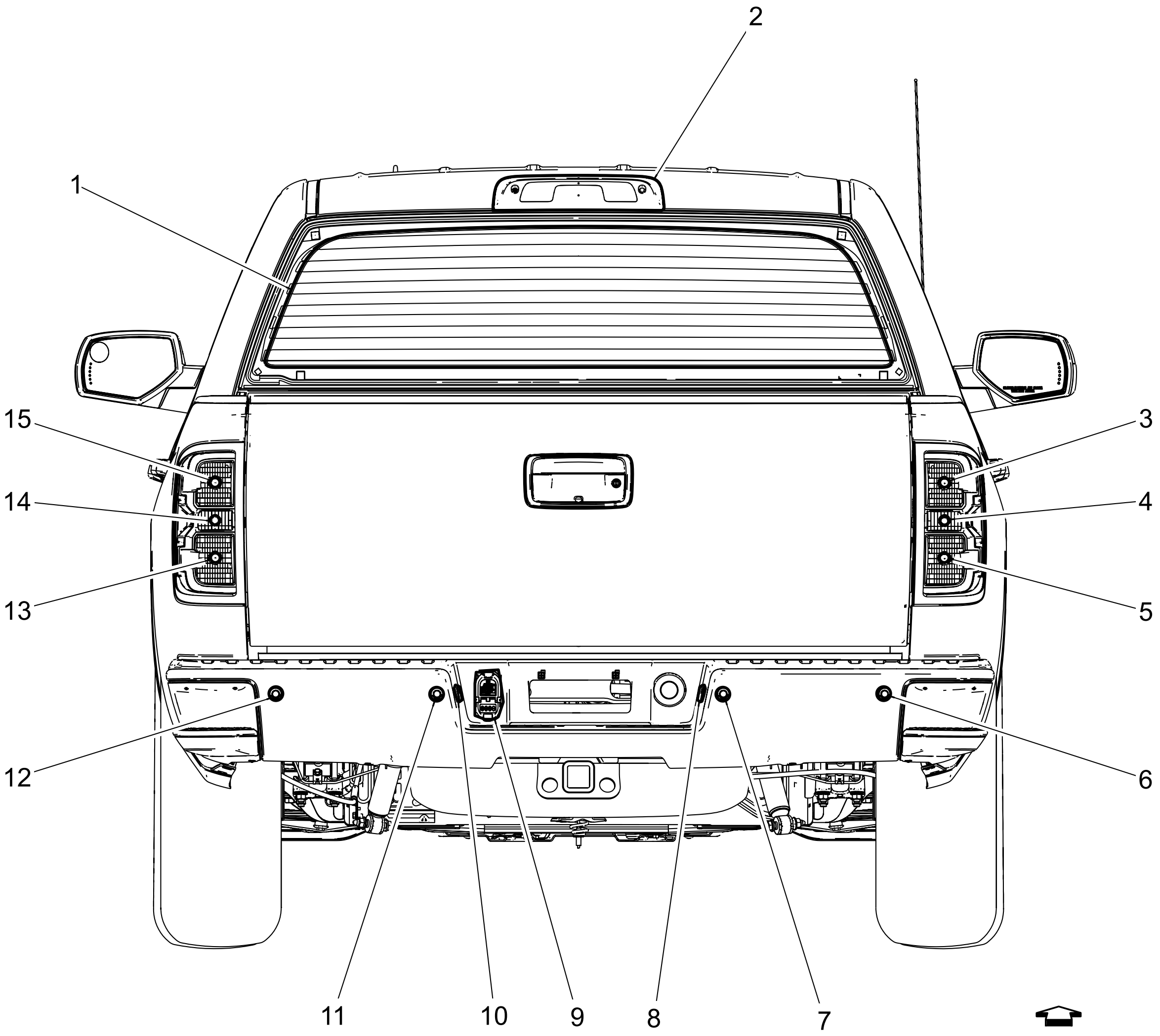




**Items**

1. S79RR Window Switch - Right Rear  (Extended or Crew Cab)
2. M74RR Window Motor - Right Rear  (Extended or Crew Cab)
3. A23RR Door Latch Assembly - Right Rear  (Extended Cab or Crew Cab)
4. B63RR Side Impact Sensor - Right Rear  (AY0)
5. P19AM Speaker - Right Rear Door  (Extended or Crew Cab)

## Rear of Vehicle Components

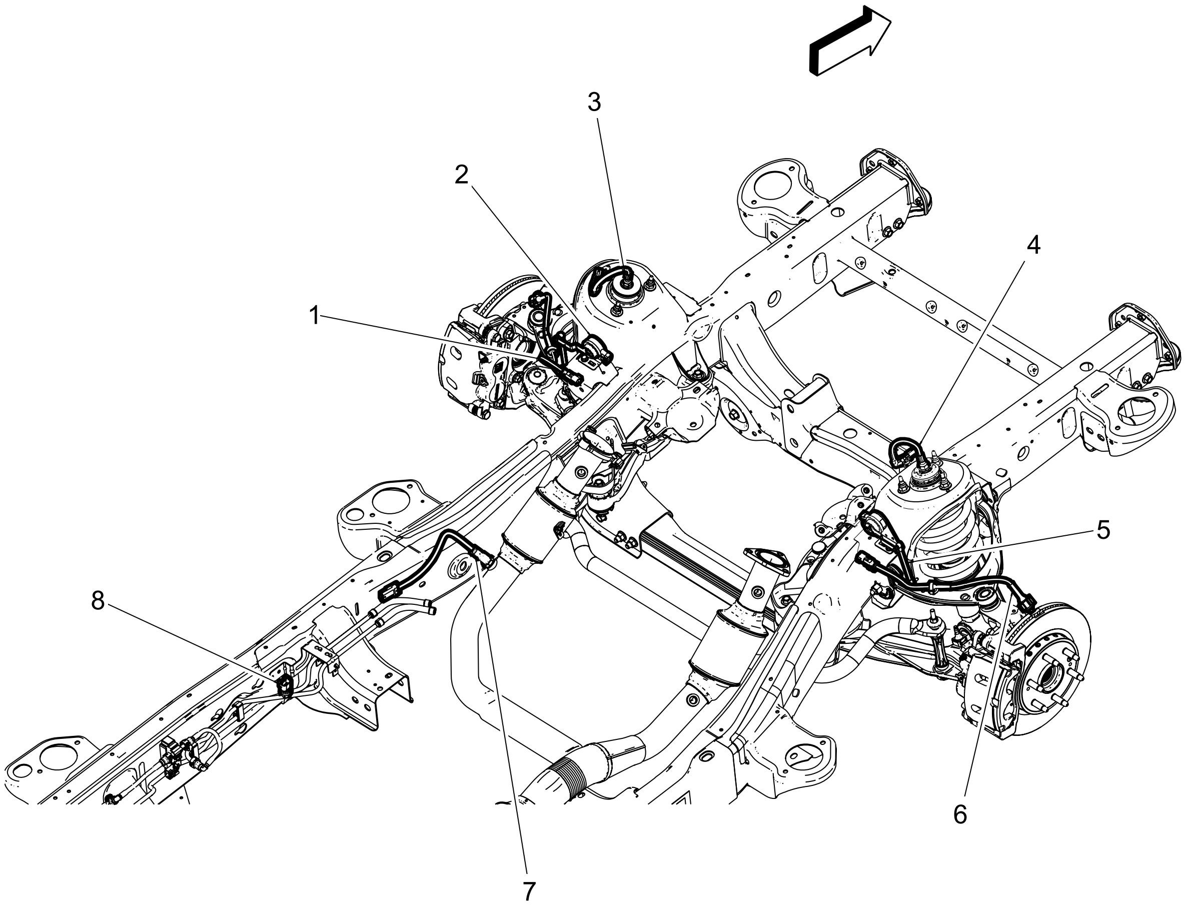


**Items**

1. E18 Rear Defogger Grid (C49)
2. E6 Center High Mounted Stop Lamp
3. E5AH Tail/Stop and Turn Signal Lamp - Right Upper (without ZW9)
4. E5B Backup Lamp - Right
5. E5V Tail/Stop and Turn Signal Lamp - Right Lower (without ZW9)
6. B78H Rear Object Sensor - Right Outer (UD7)
7. B78F Rear Object Sensor - Right Middle (UD7)
8. E7R License Plate Lamp - Right (E63 without 9J4)
9. X88 Trailer Connector (Z82)
10. E7L License Plate Lamp - Left (E63 without 9J4)
11. B78E Rear Object Sensor - Left Middle (UD7)

11. B78E Rear Object Sensor - Left Middle (UD7)
12. B78G Rear Object Sensor - Left Outer (UD7)
13. E5U Tail/Stop and Turn Signal Lamp - Left Lower (without ZW9)
14. E5A Backup Lamp - Left
15. E5AG Tail/Stop and Turn Signal Lamp - Left Upper (without ZW9)

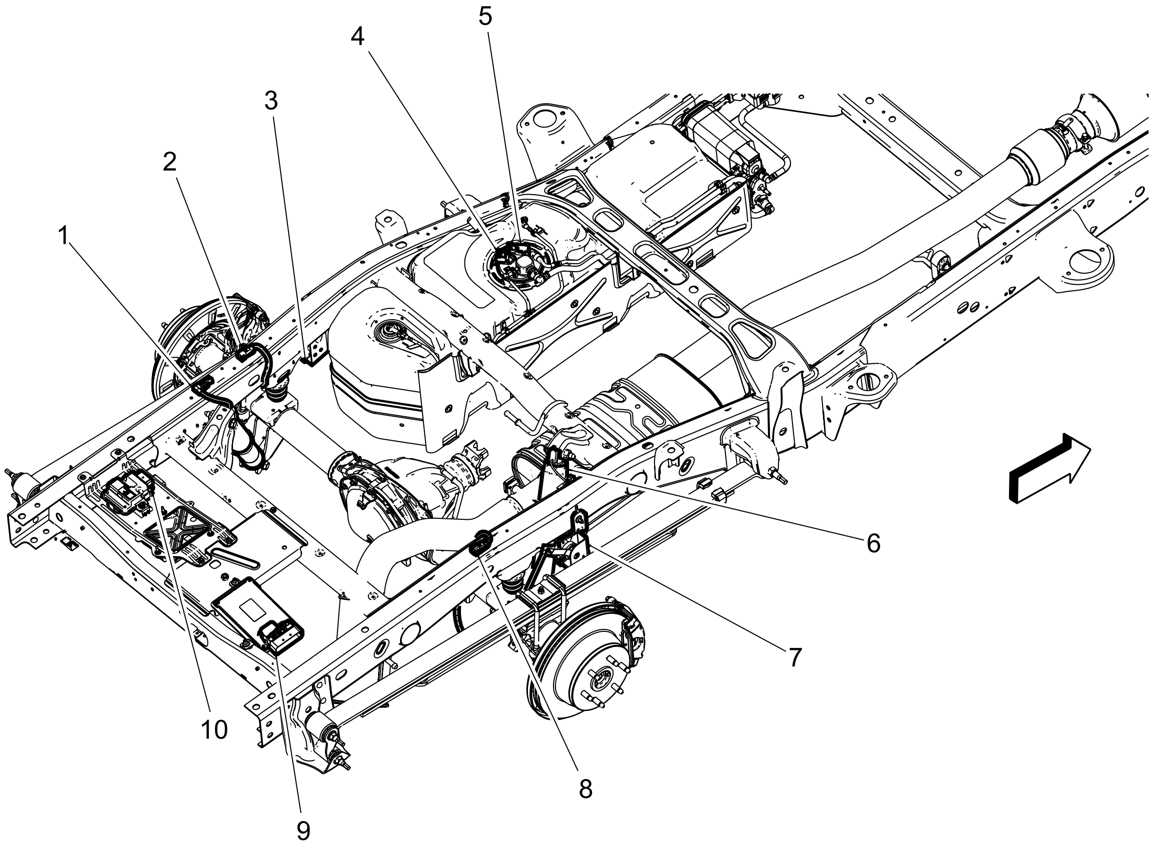
## Front Chassis Components (1500)



**Items**

1. B5LF Wheel Speed Sensor - Left Front
2. B152LF Suspension Position Sensor - Left Front (Z95)
3. Q37LF Shock Absorber Actuator - Left Front (Z95)
4. Q37RF Shock Absorber Actuator - Right Front (Z95)
5. B152RF Suspension Position Sensor - Right Front (Z95)
6. B5RF Wheel Speed Sensor - Right Front
7. B52D Heated Oxygen Sensor - Bank 1 Sensor 2 (except L5P)
8. B47 Fuel Pressure Sensor (1500)

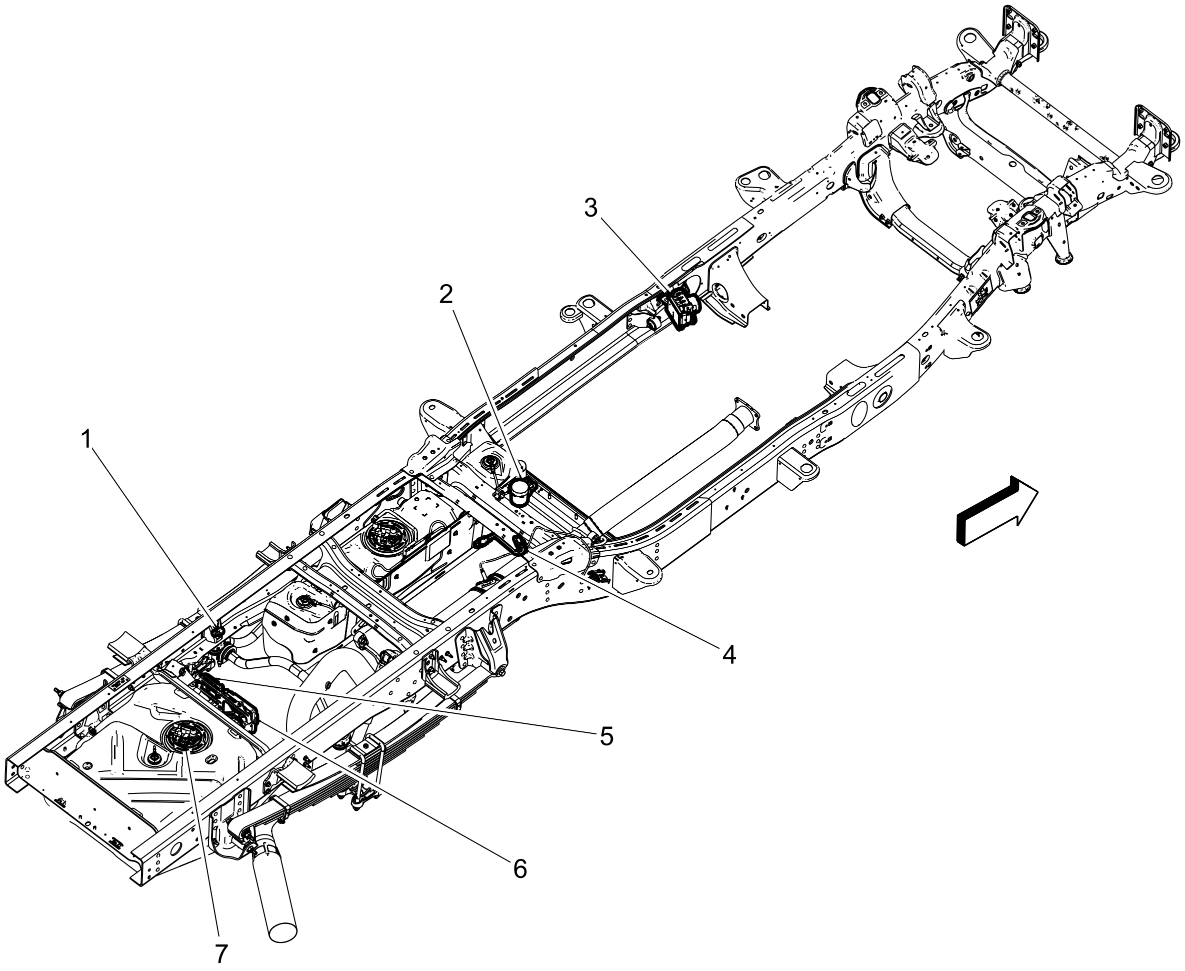
## Rear Chassis Components (except Chassis Cab or L5P)



**Items**

1. Q37LR Shock Absorber Actuator - Left Rear (Z95)
2. B5LR Wheel Speed Sensor - Left Rear
3. B152LR Suspension Position Sensor - Left Rear (Z95)
4. A7 Fuel Pump and Level Sensor Assembly (1500)
5. B150 Fuel Tank Pressure Sensor
6. Q37RR Shock Absorber Actuator - Right Rear (Z95)
7. B152RR Suspension Position Sensor - Right Rear (Z95)
8. B5RR Wheel Speed Sensor - Right Rear
9. K19 Suspension Control Module (Z95)
10. K38A Chassis Control Module - Auxiliary (JL1)

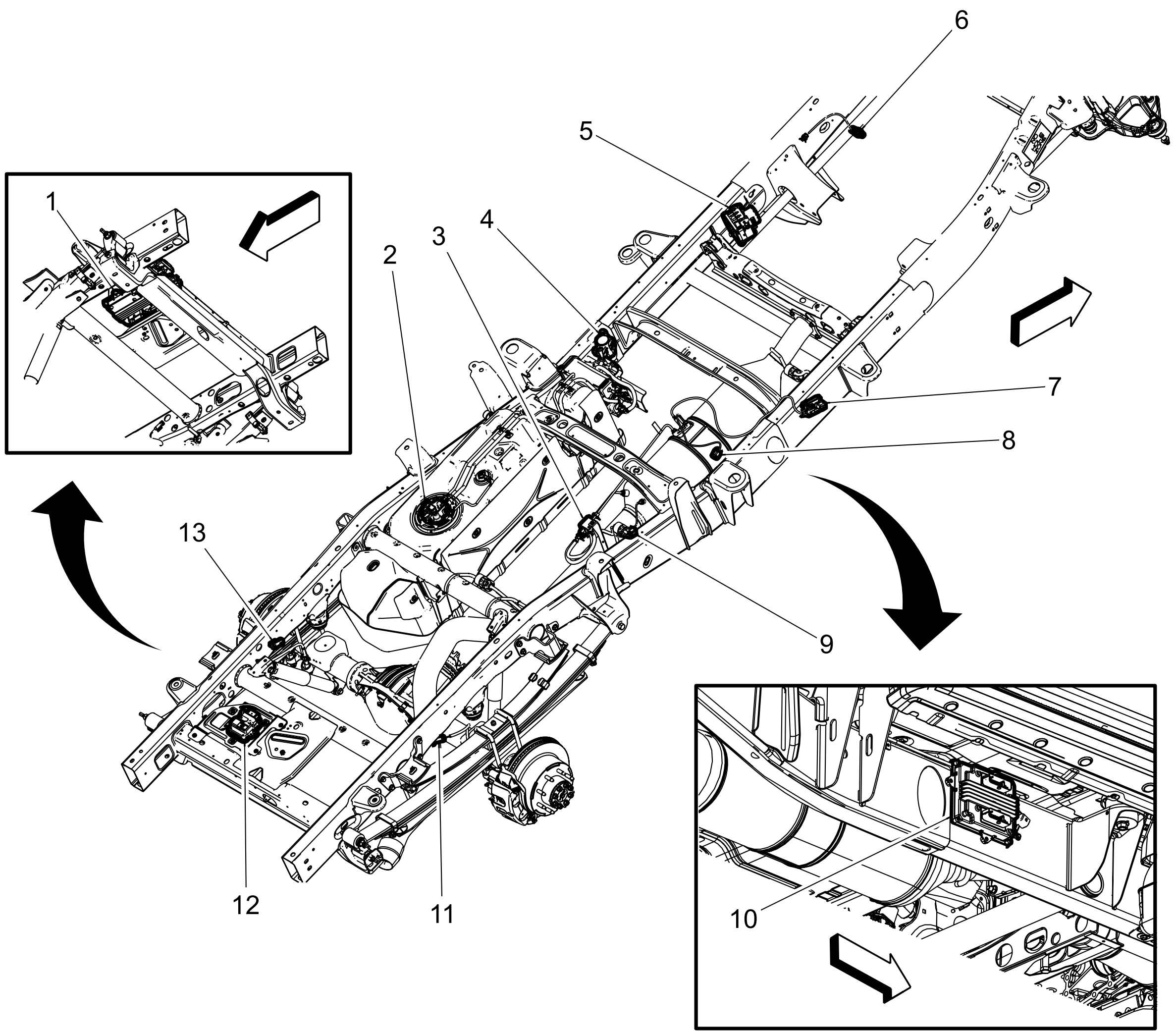
## Chassis Components (2500/3500)



**Items**

1. R6A Terminating Resistor - High Speed Bus
2. B150 Fuel Tank Pressure Sensor
3. Q13 Evaporative Emission Vent Solenoid Valve (except L5P)
4. K17 Electronic Brake Control Module
5. B195A Nitrogen Oxides Sensor 1 (L5P)
6. K133 Trailer Brake Power Control Module (JL1)
7. K38A Chassis Control Module - Auxiliary (JL1)

## Chassis Components (Chassis Cab)

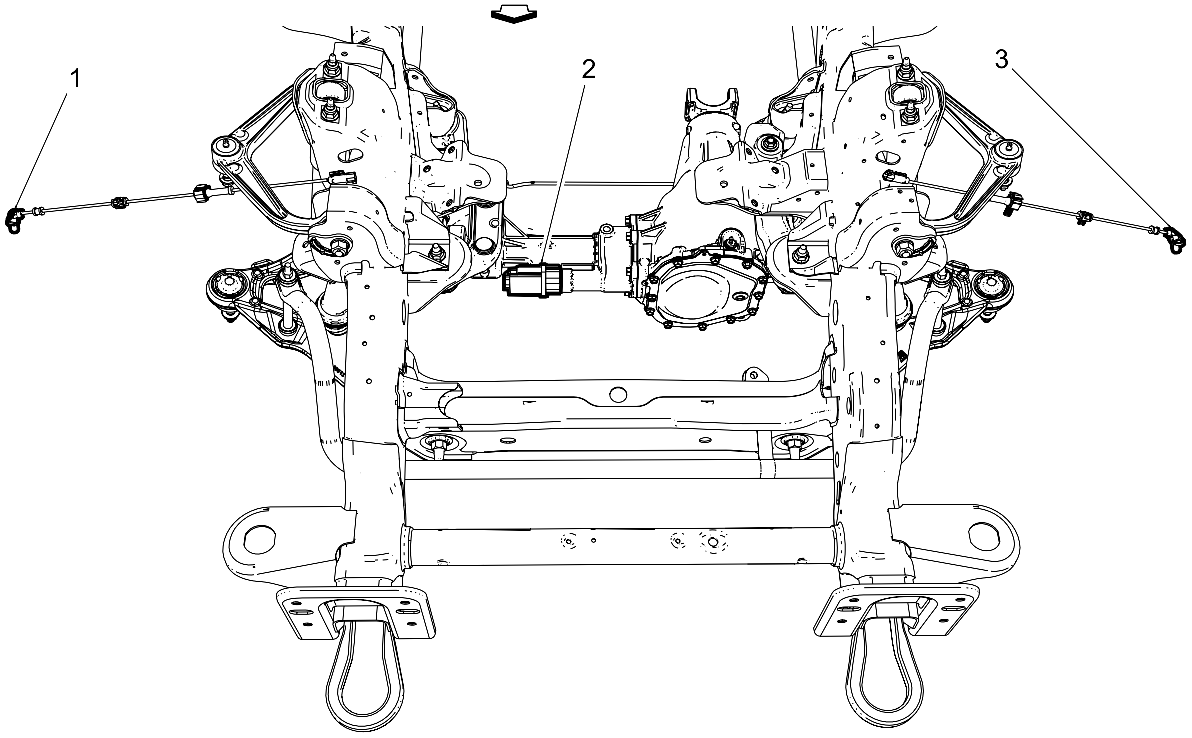


**Items**

1. K38A Chassis Control Module - Auxiliary (JL1)
2. B150 Fuel Tank Pressure Sensor
3. B154 Diesel Particulate Filter Exhaust Differential Pressure Sensor (L5P)
4. Q13 Evaporative Emission Vent Solenoid Valve (except L5P)
5. K17 Electronic Brake Control Module
6. B52F Heated Oxygen Sensor - Bank 2 Sensor 2 (except L5P)
7. B195B Nitrogen Oxides Sensor 2 (L5P)
8. B131C Exhaust Temperature Sensor 3 (L5P)
9. B131D Exhaust Temperature Sensor 4 (L5P)
10. K44 Power Take-Off Control Module (PTO)
11. B5LR Wheel Speed Sensor - Left Rear

11. B5LR Wheel Speed Sensor - Left Rear
12. K133 Trailer Brake Power Control Module (JL1)
13. B5RR Wheel Speed Sensor - Right Rear

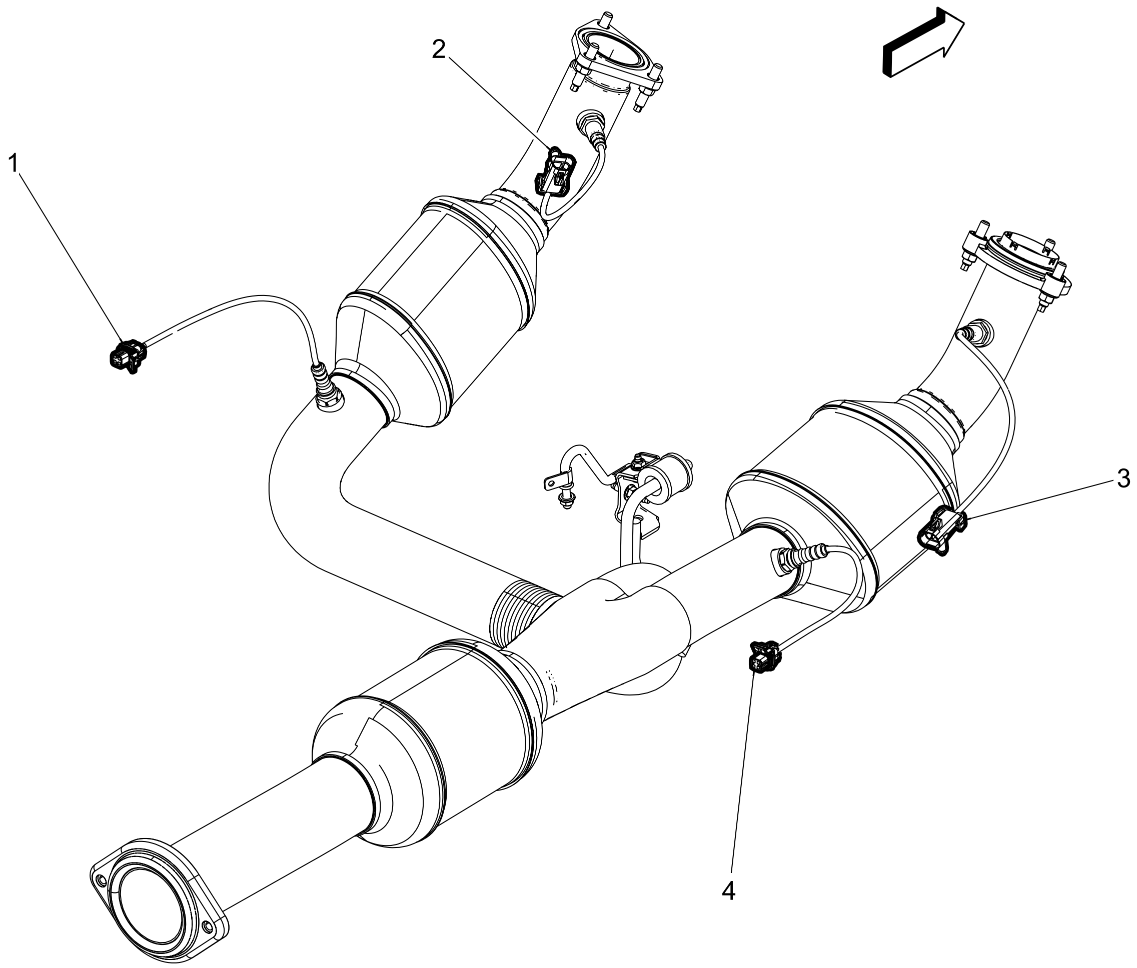
## Front Axle Components



**Items**

1. B5RR Wheel Speed Sensor - Right Rear
2. M26 Front Axle Engagement Actuator (NQF, MQG or MQH)
3. B5LR Wheel Speed Sensor - Left Rear

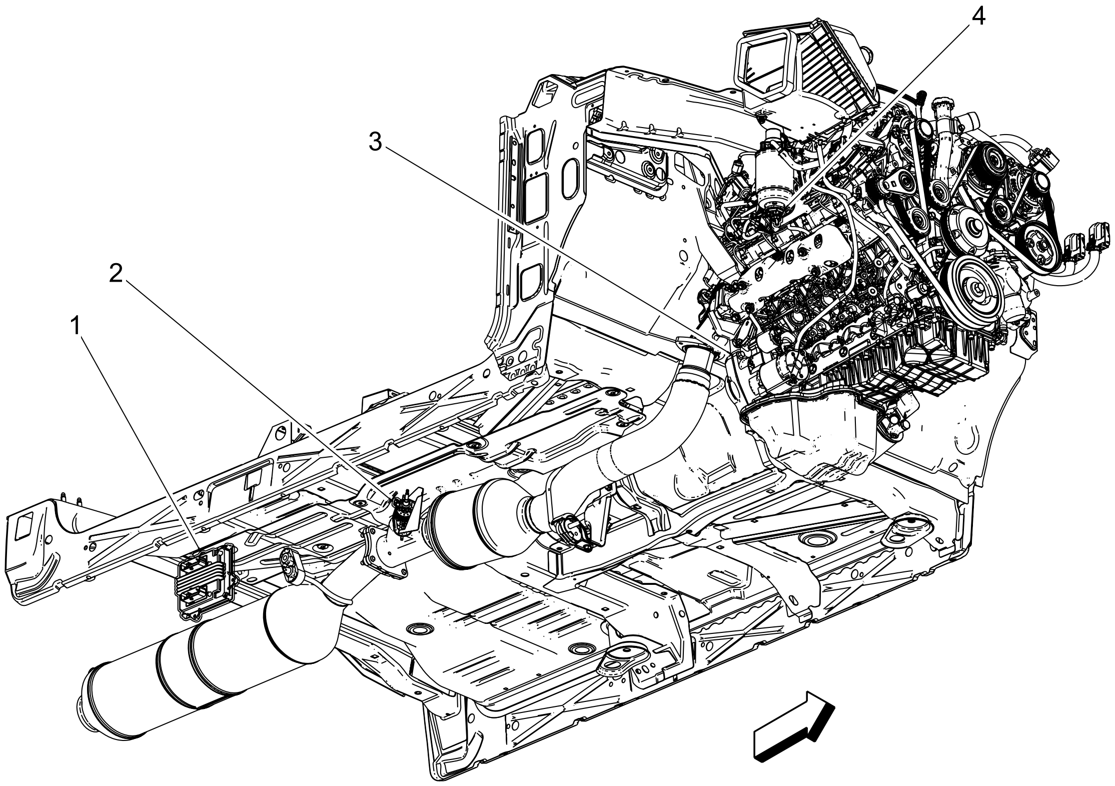
# Exhaust Components (L96)



**Items**

1. B52D Heated Oxygen Sensor - Bank 1 Sensor 2 (except L5P)
2. B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (except L5P)
3. B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (except L5P)
4. B52F Heated Oxygen Sensor - Bank 2 Sensor 2 (except L5P)

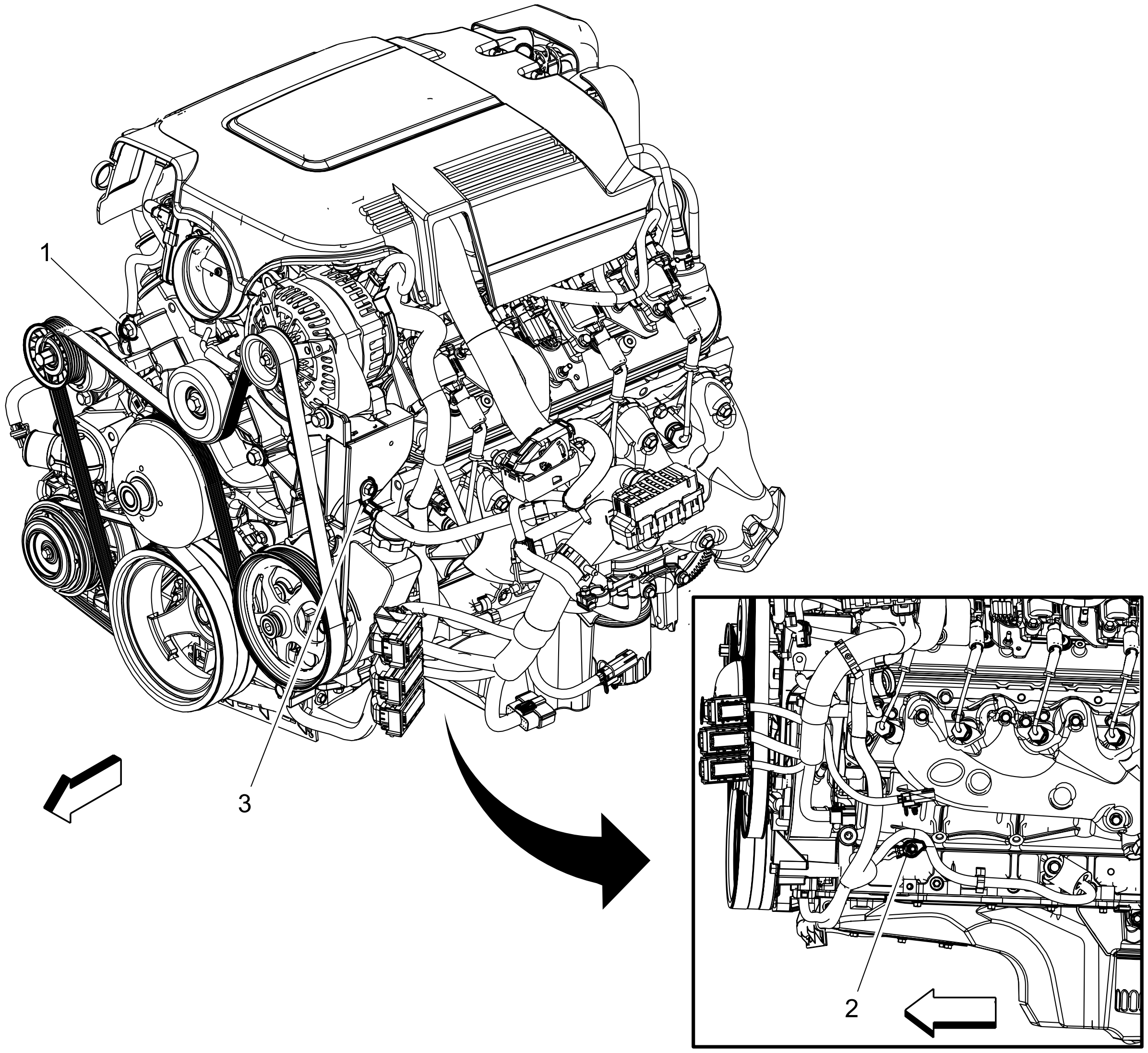
## Underbody Components (L5P)



**Items**

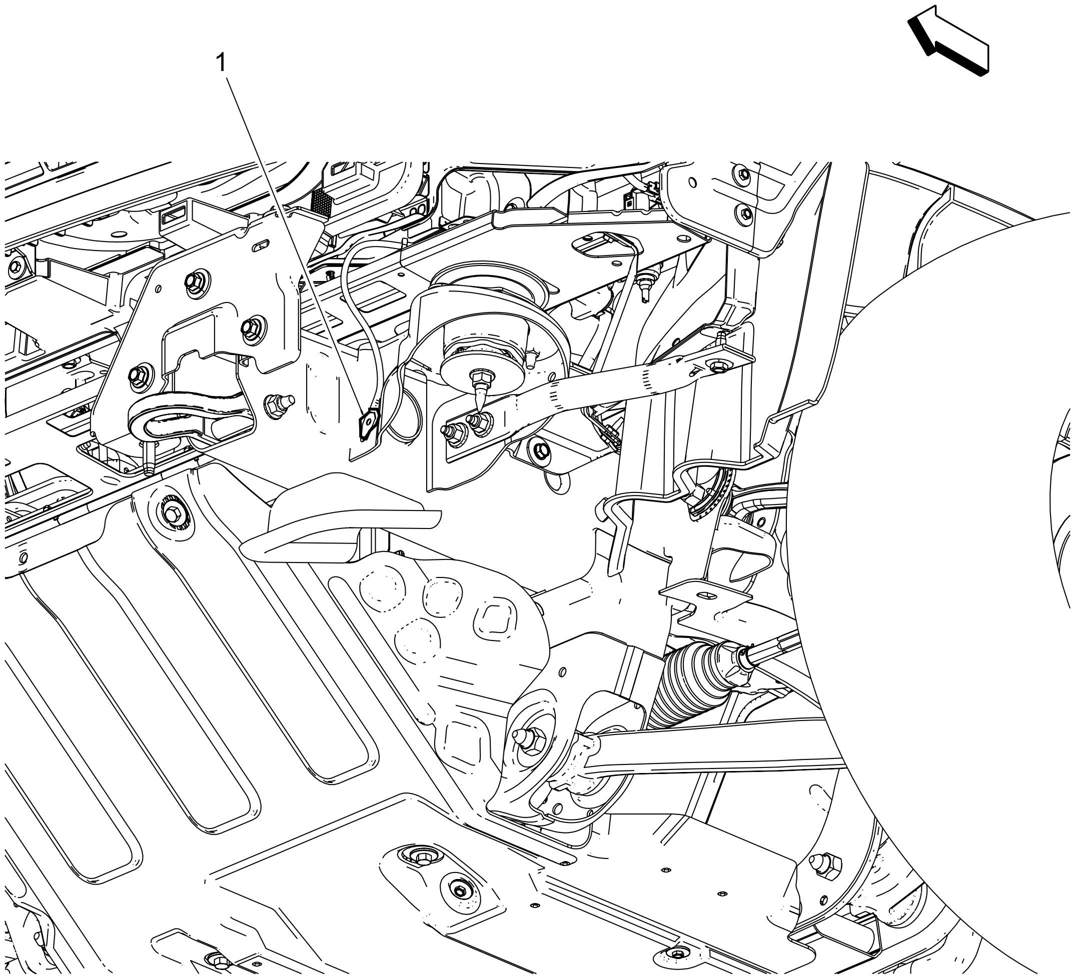
1. K44 Power Take-Off Control Module (PTO)
2. Q61 Reductant Injector (L5P)
3. M64 Starter Motor
4. B116 Water in Fuel Sensor

## G100, G110 and G120 (L96 or LC8)



**Items**

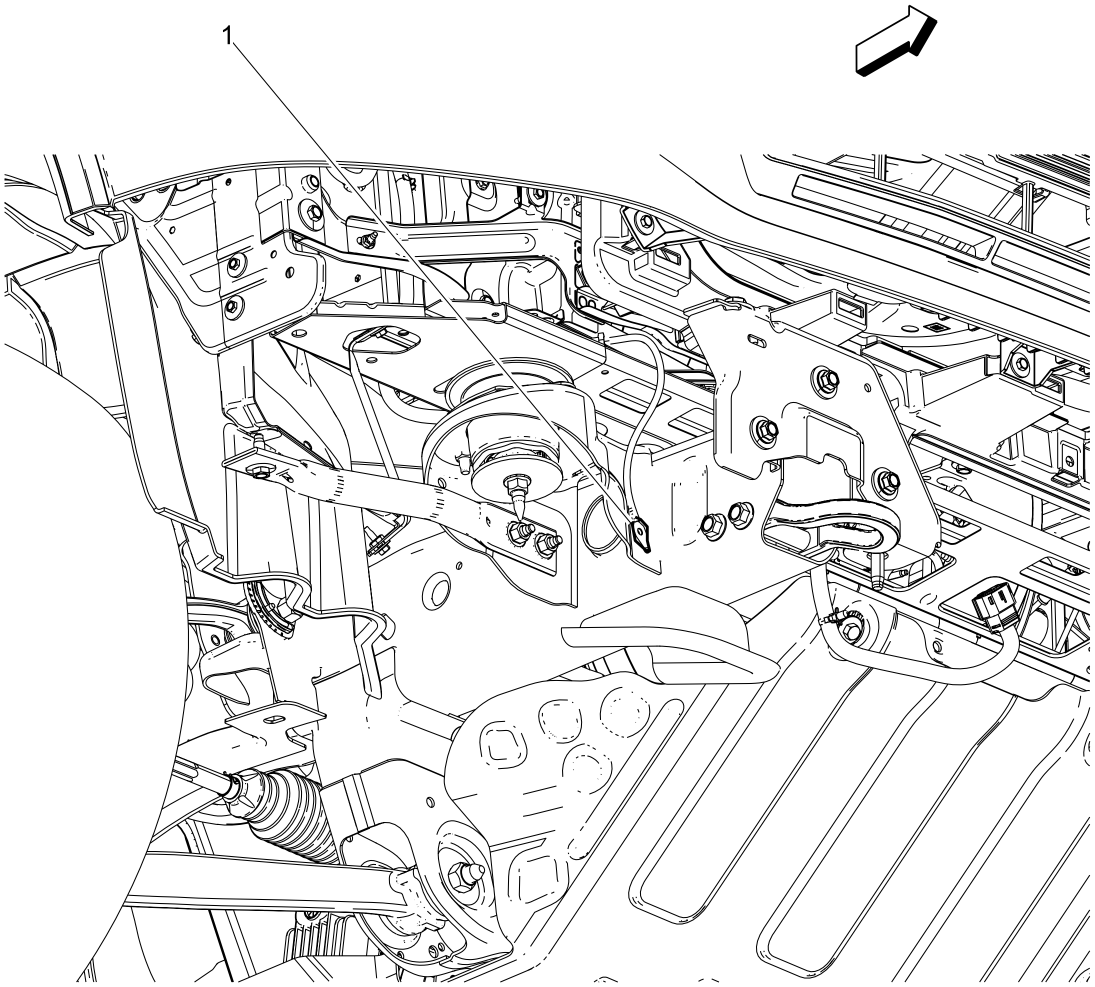
1. G120
2. G110
3. G100 (K4B or K4D)



**Items**

1. G101

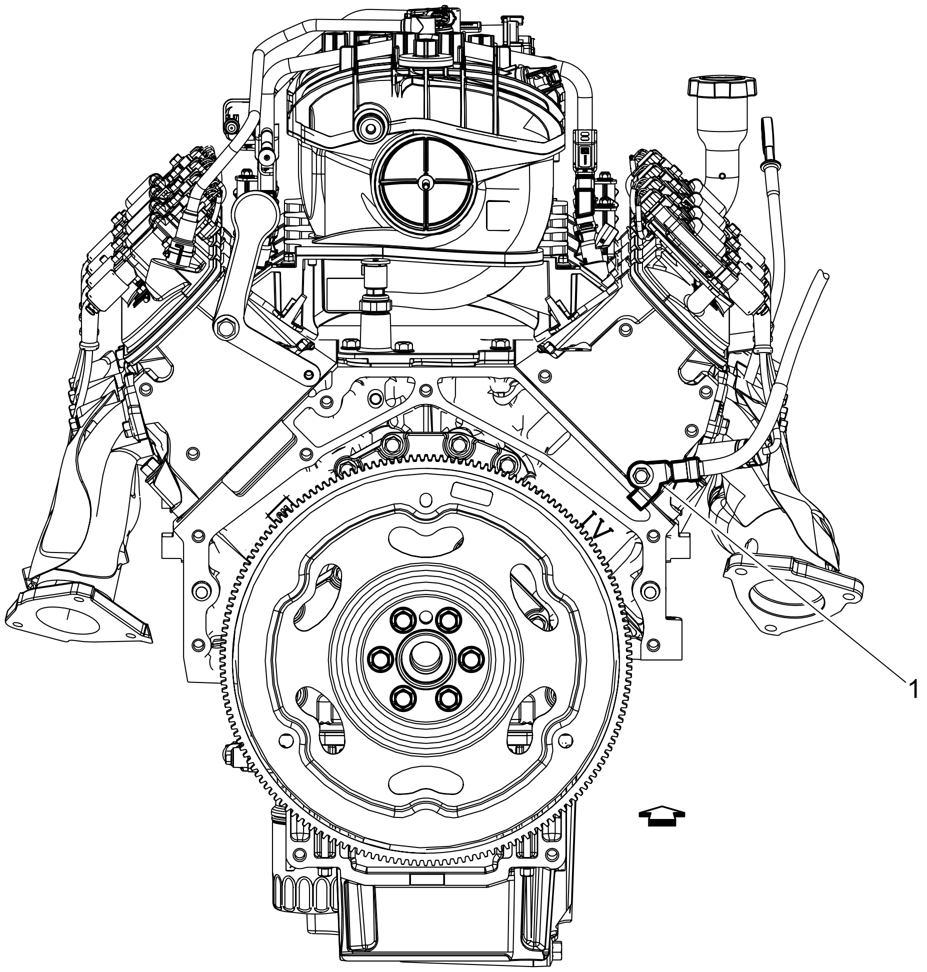
## G102



**Items**

1. G102

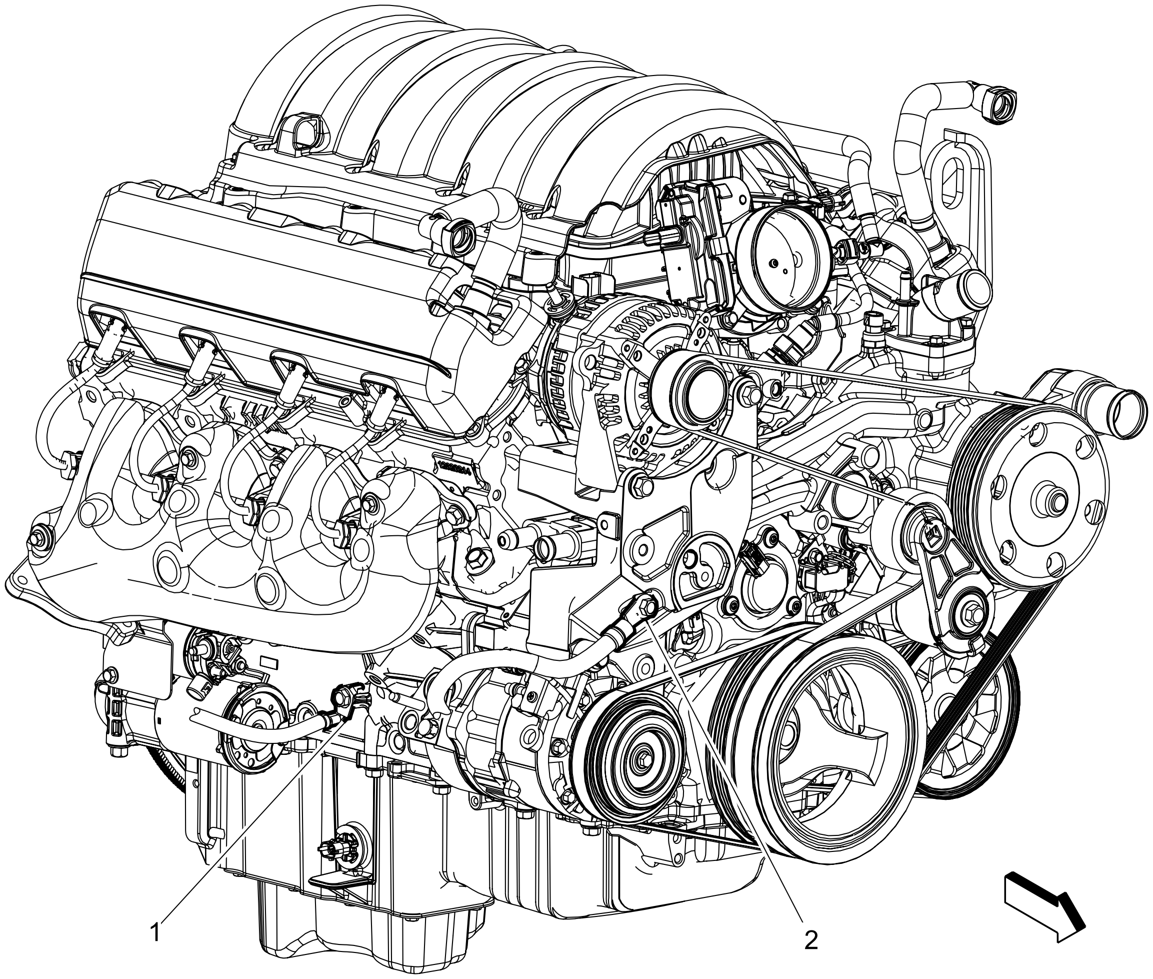
## G103 (L96 or LC8)



**Items**

1. G103

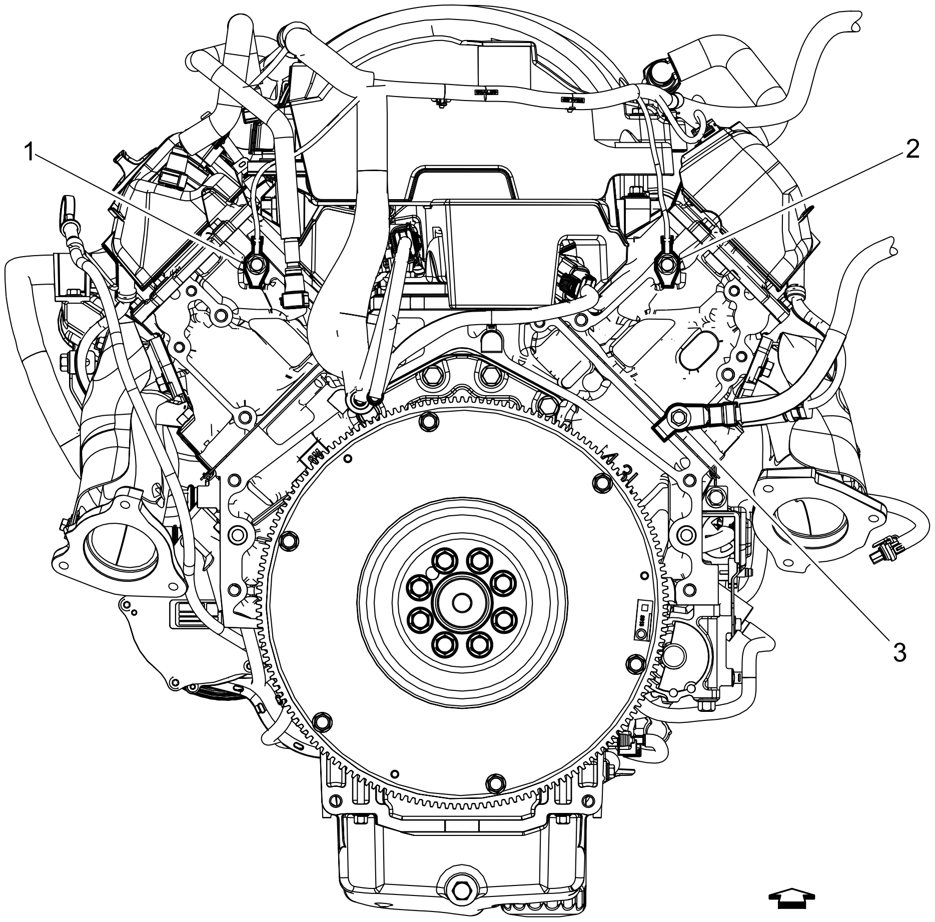
## G103 and G125 (L83/L86/L8B)



**Items**

1. G103
2. G125 (1500)

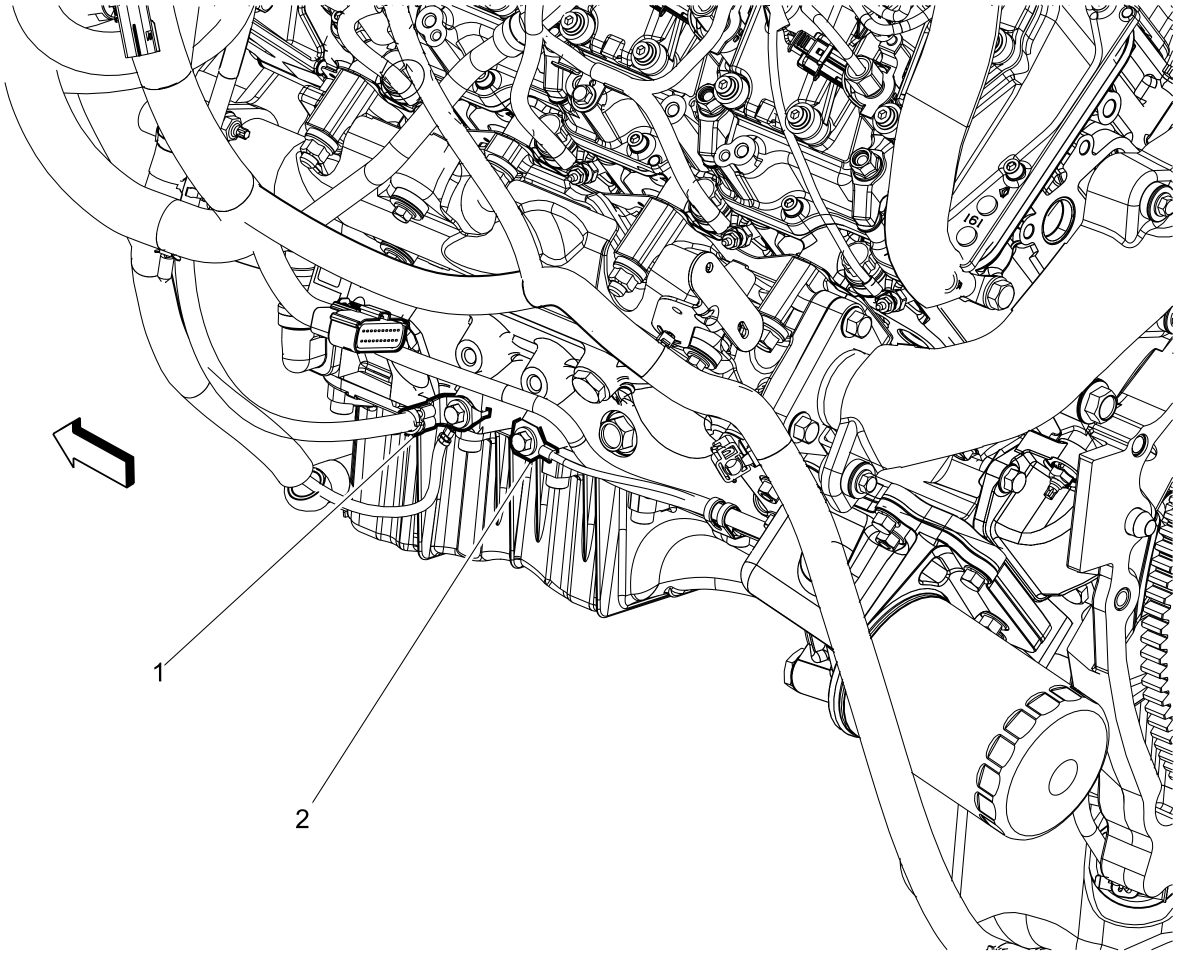
## G103, G130 and G140 (LV3)



**Items**

1. G130 (1500)
2. G140 (1500)
3. G103

## G109 and G110 (L5P)

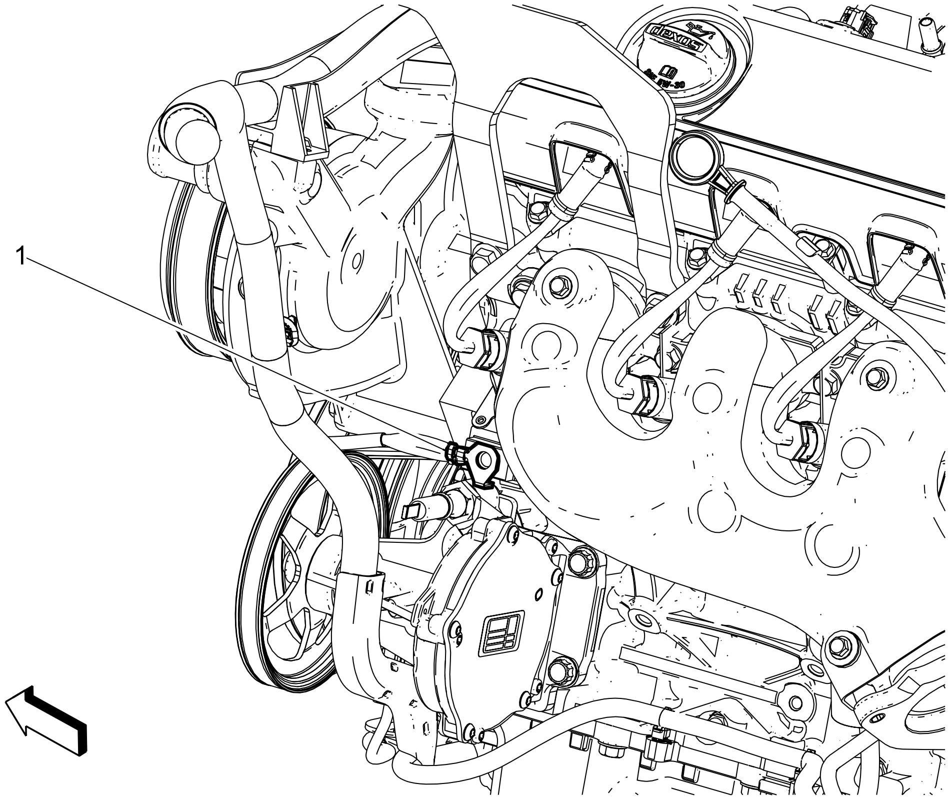


**Items**

1. G110

2. G109 (L5P)

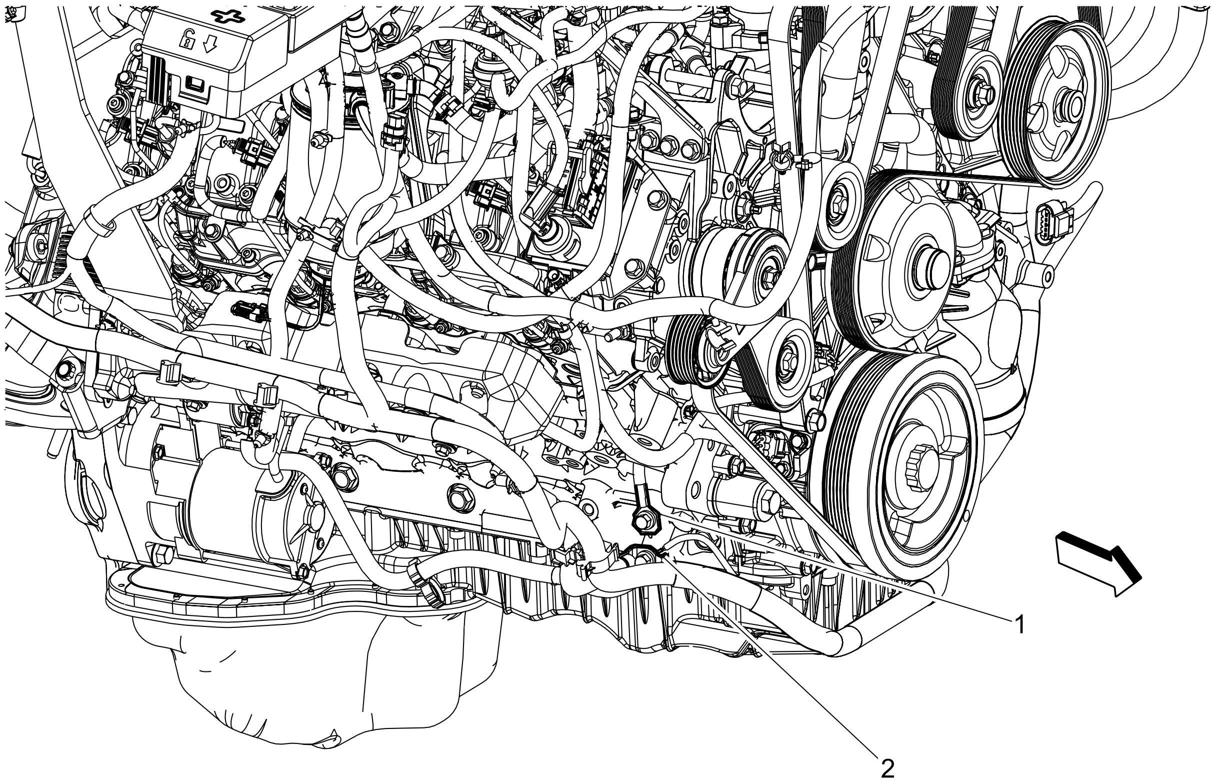
## G110 (1500)



**Items**

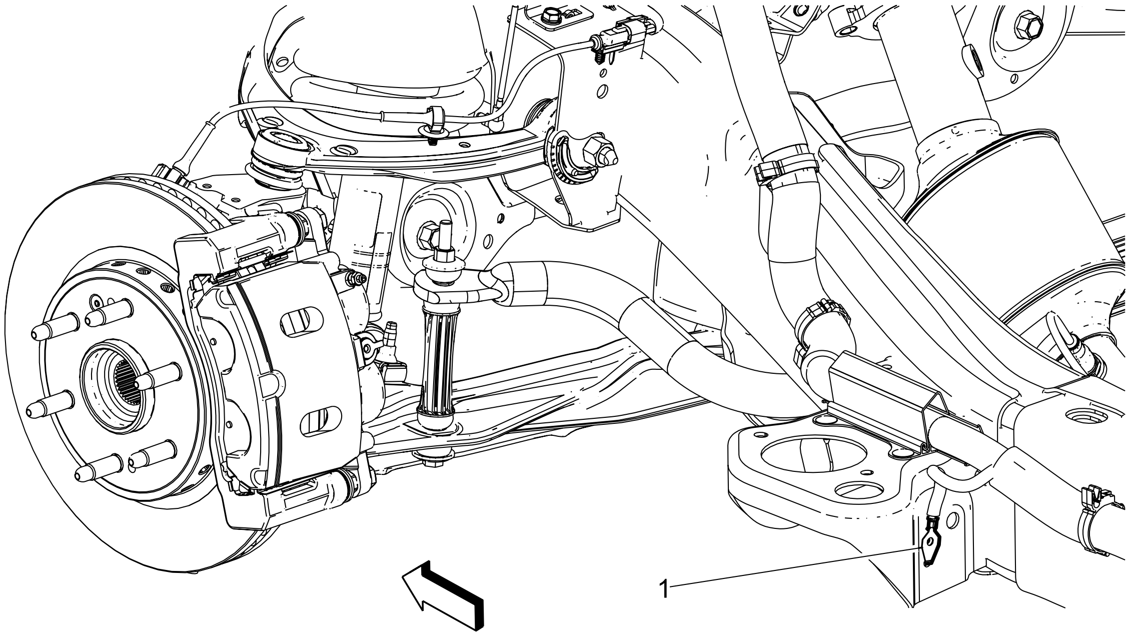
1. G110

# G120 and G122 (L5P)



**Items**

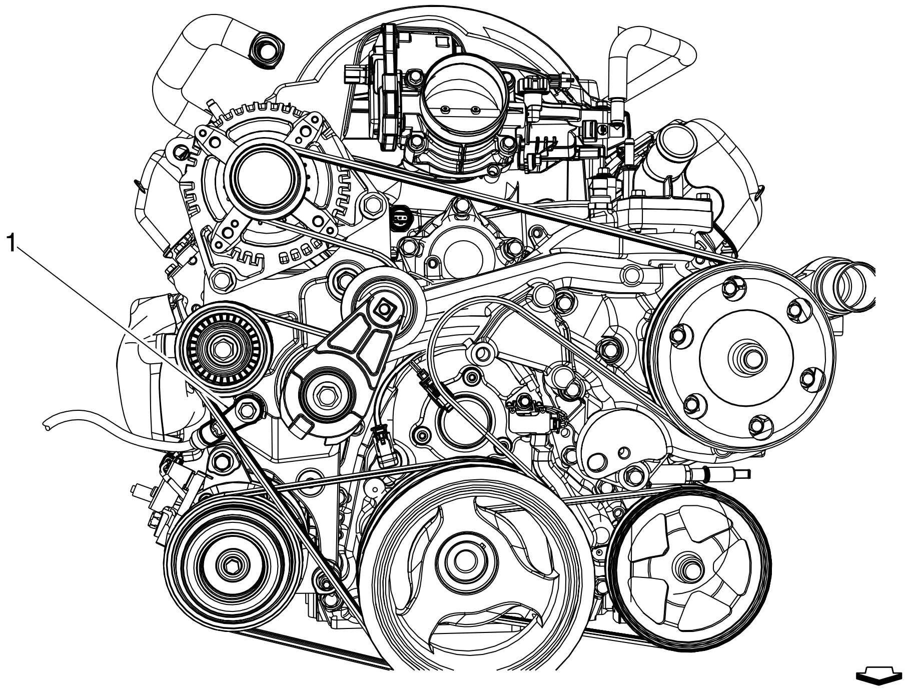
1. G122 (L5P)
2. G120



**Items**

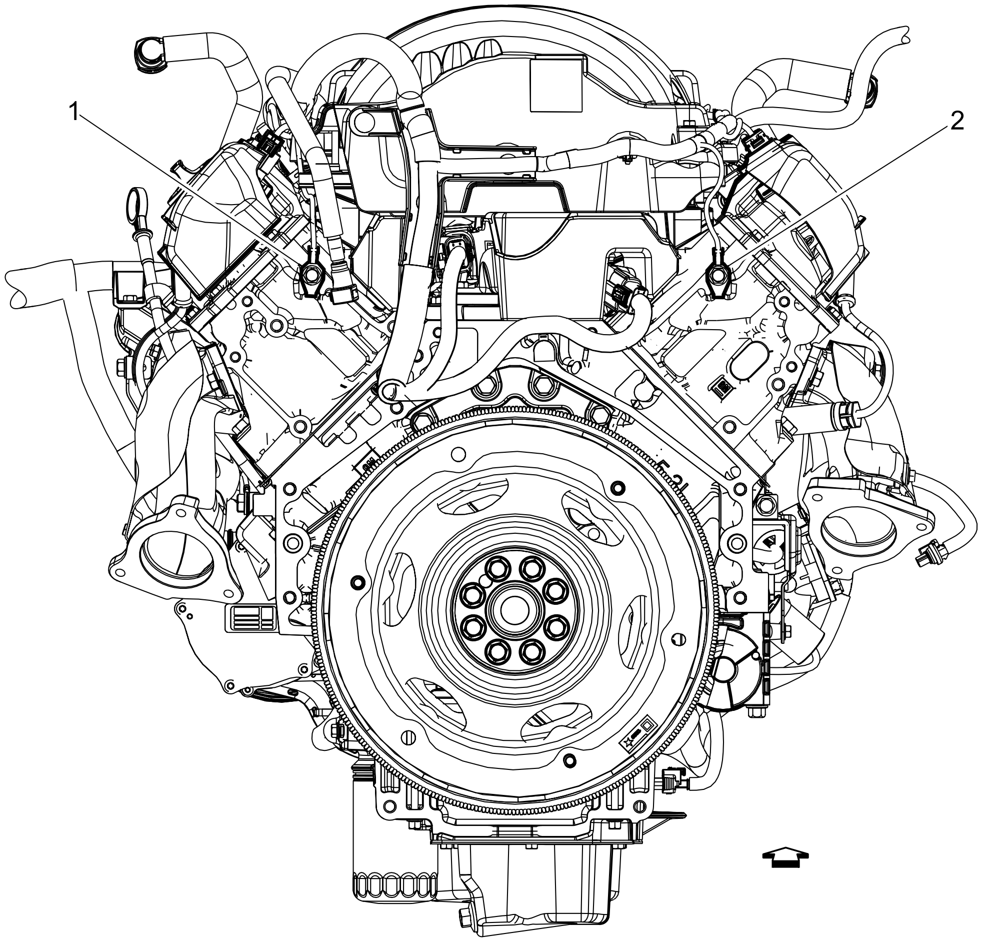
1. G121

## G125 (LV3)



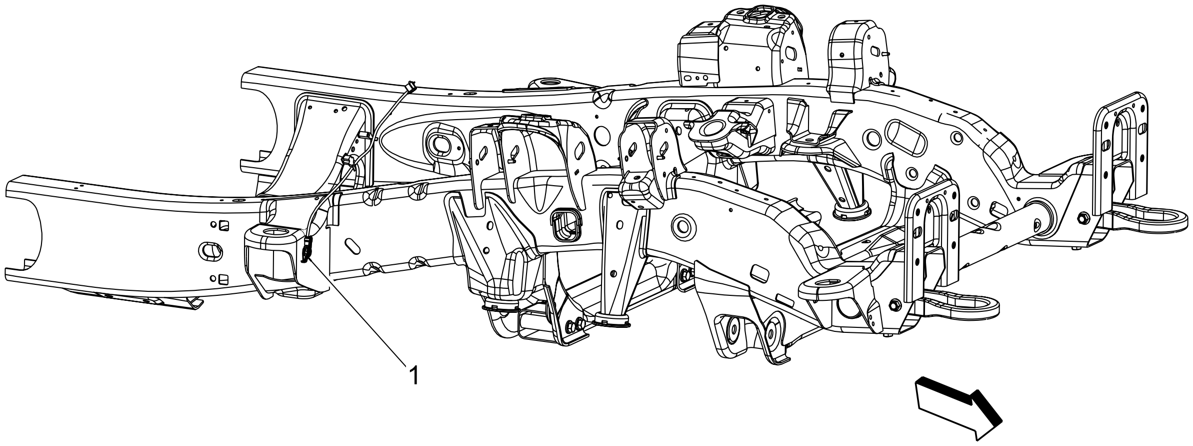
**Items**

1. G125 (1500)



**Items**

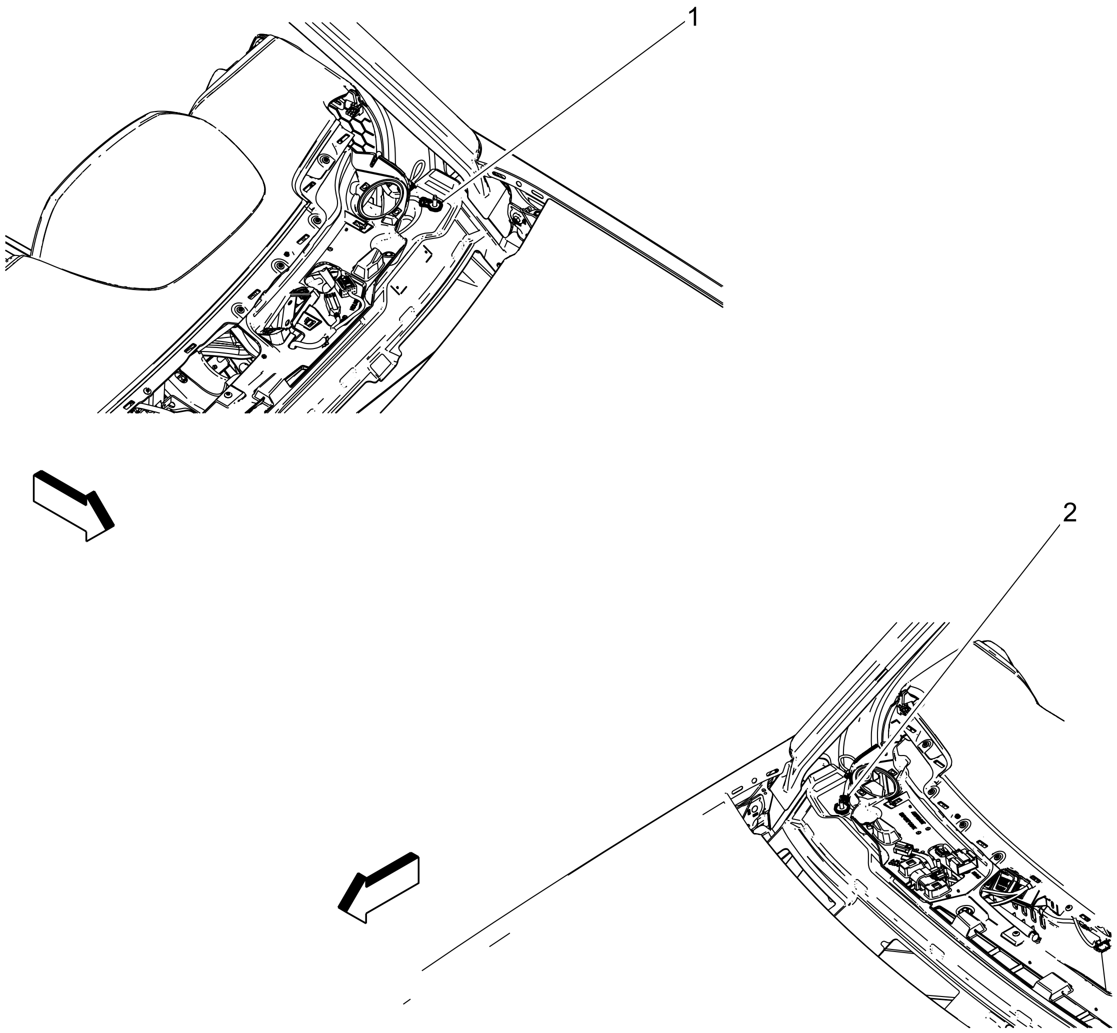
1. G130 (1500)
2. G140 (1500)



**Items**

1. G141

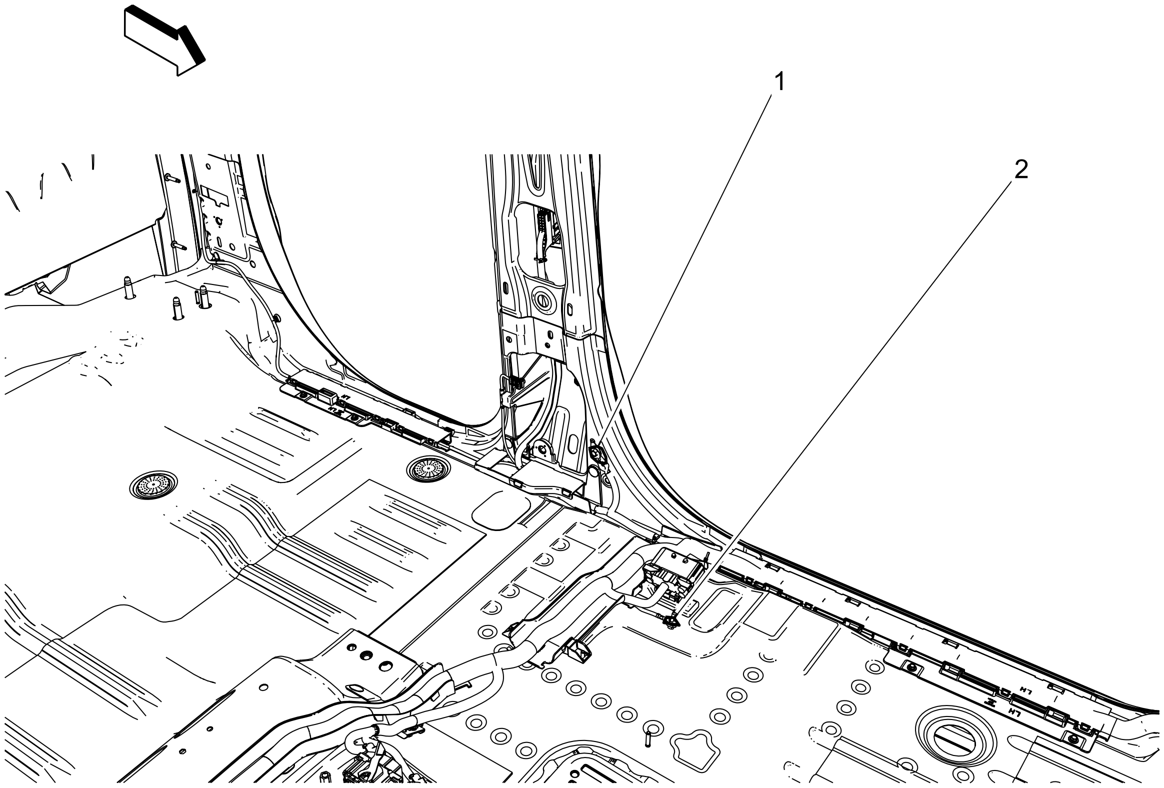
# G210 and G218



**Items**

1. G218
2. G210

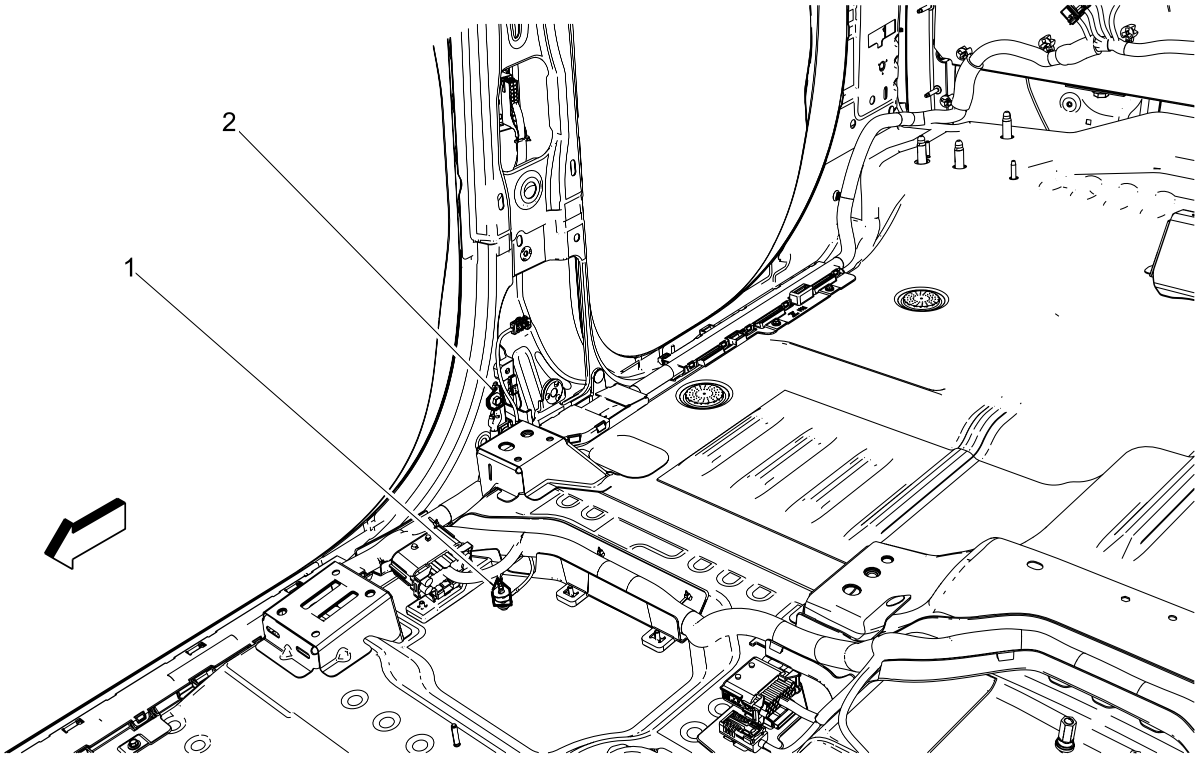
## G311 and G325



**Items**

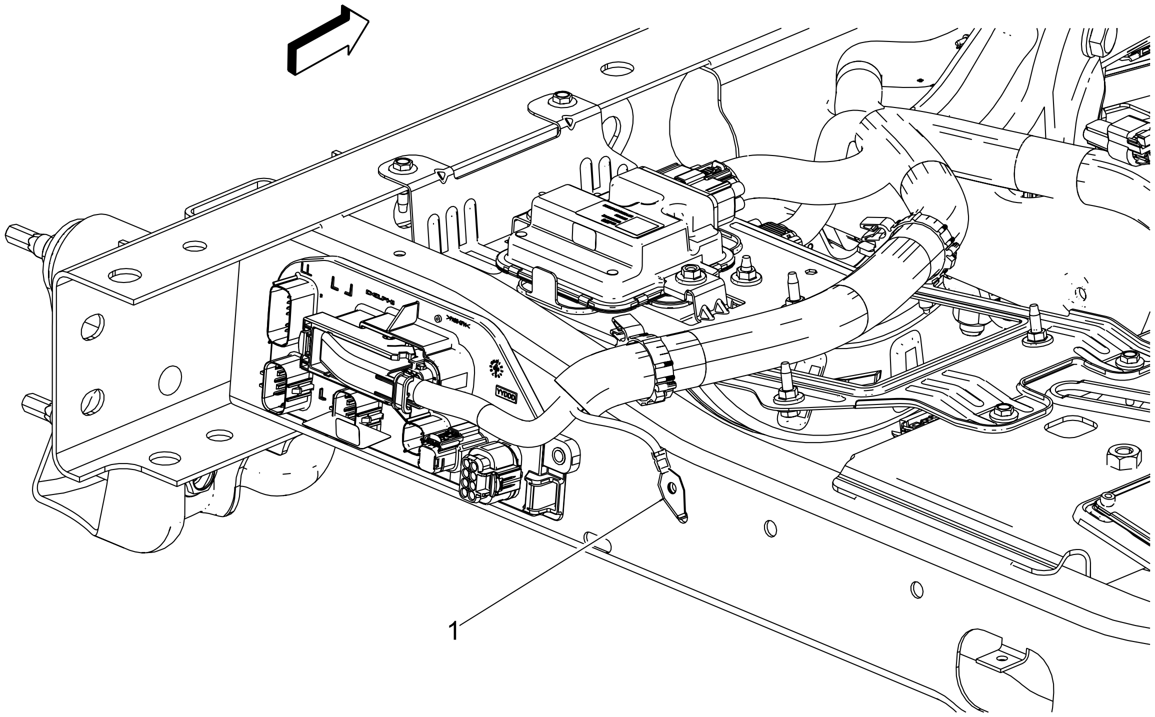
1. G311
2. G325

## G312 and G327



**Items**

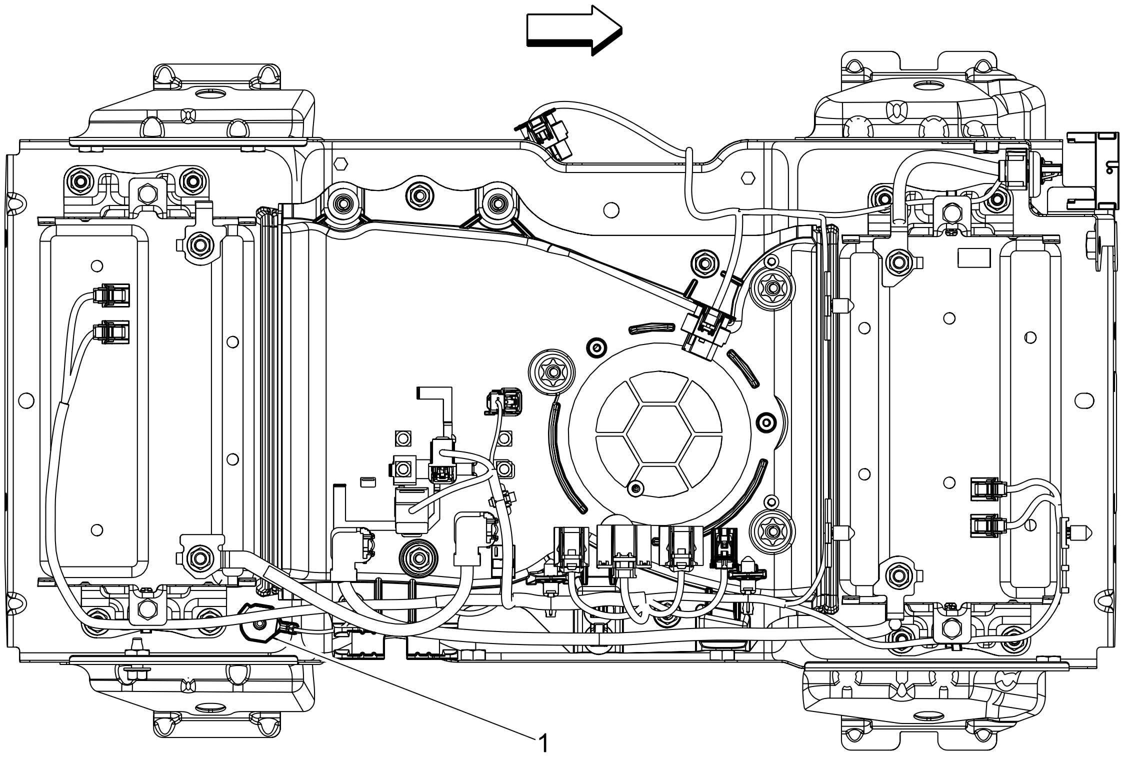
1. G327
2. G312



**Items**

1. G400

## G407 (HP5)

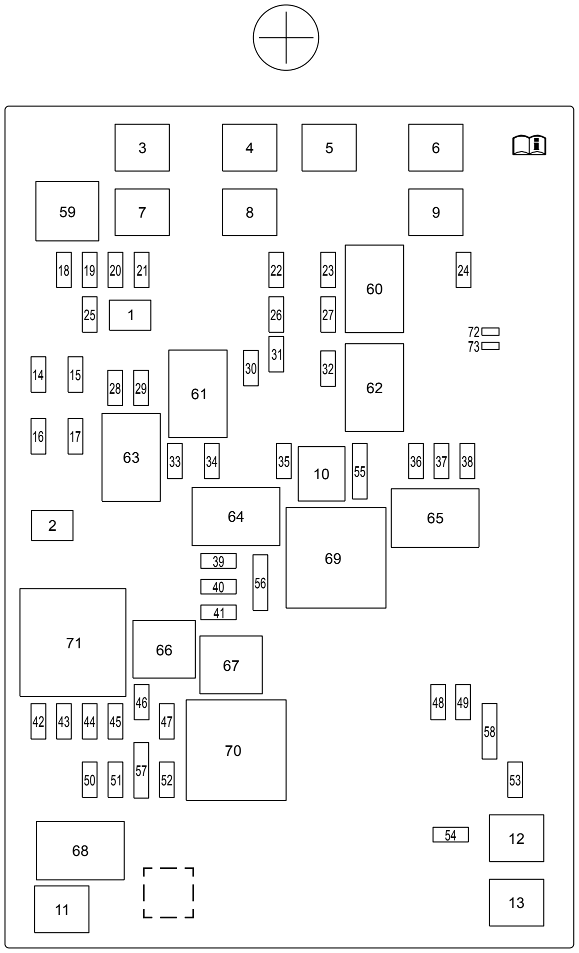


**Items**

1. G407 (HP5)

## Electrical Center Identification Views

### X50A Fuse Block - Underhood Label (except HP5)


3
4
5
6
59
7
8
9
18
19
20
21
22
23
60
24
25
1
26
27
72
73
14
15
28
29
61
30
31
32
62
16
17
63
33
34
35
10
55
36
37
38
2
64
65
69
39
40
56
41
71
66
67
46
47
48
49
58
42
43
44
45
70
50
51
57
52
53
54
12
68
11
13

MICRO J-CASE FUSES

1. TRLR BRK (30A)
2. TRLR BATT (30A)

J-CASE FUSES

3. ABS PUMP (60A)
4. I/P BEC 1 (60A)
5. MSB PASS (40A)
6. 4WD TREC (30A)
7. ELEC PRK BRK (40A)
8. I/P BEC 2 (60A)
9. MSB DRVR (40A)
10. REAR DEFOG (30A)
11. STRTR (40A)
12. COOL FAN 1 (40A)
13. COOL FAN 2 (40A)

MINI FUSES 2 PIN

14. TRLR STOP TRN LT (10A)
15. TRLR PRK LAMP (20A)
16. REV LAMP (10A)
17. TRLR STOP TRN RT (10A)

MICRO FUSES 2 PIN

18. FUEL PUMP (20A)
19. ICCM (10A)
20. ESC ELC EXH (30A)
21. FPPM (30A)
22. UPFTR SW1 (5A)
23. UPFTR 2 (30A)
24. FRT/WPR (25A)
25. ABS VLV (25A)
26. UPFTR SW2 (5A)
27. UPFTR SW3 (5A)
28. PRK LAMP RT (15A)
29. PRK LAMP LT (15A)
30. UPFTR 3 (30A)
31. UPFTR SW4 (5A)
32. UPFTR 4 (30A)
33. BCK UP LAMP (10A)
34. ECM IGN (15A)
35. A/C CLTCH (10A)
36. HTD MIR (15A)
37. UPFTR 1 (30A)
38. CHMSL (10A)
39. MISC IGN (15A)
40. TRANS IGN (15A)
41. FUEL PUMP 2 (20A)
42. COOL FAN CLTCH (10A)
43. ENG (15A)
44. INJ A ODD (20A)
45. INJ B EVEN (20A)
46. O2 SNSR B (15A)
47. THROT CONT (15A)
48. HORN (15A)
49. FOG LAMP (15A)
50. O2 SNSR A (15A)
51. ECM (30A)
52. INT HTR (10A)
53. ACCY PWR MDL/TPIM PUMP (10A)
54. FRT WASH (15A)

MICRO FUSES 3 PIN

55. A/C CMPRSR MDL/BATT RVC (5A/5A)
56. A/C CMPRSR MDL/BATT PCK (10A/10A)
57. TCM / ECM (15A/15A)
58. HDLP RT / LT (10A/10A)

MICRO RELAYS

59. FUEL PUMP
60. UPFTR 2
61. UPFTR 2
62. UPFTR 2
63. TRLR PRK LAMPS
64. RUN/CRNK
65. UPFTR 1
66. FUEL PUMP 2
67. A/C CNTRL
68. STRTR

MINI RELAYS

69. REAR DEFOG
70. ECM

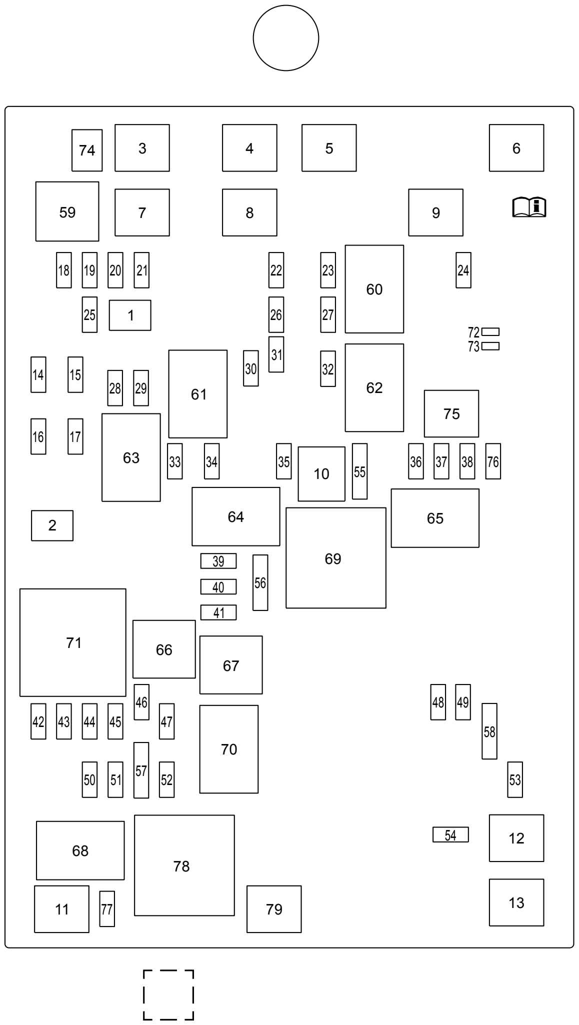
SOLID STATE RELAY

71. COOL FAN CLTCH

TEST POINTS

72. CKT 95
73. CKT 92

## X50A Fuse Block - Underhood Label (HP5)


74
3
4
5
6
59
7
8
9
18
19
20
21
22
23
60
24
25
1
26
27
72
73
31
14
15
28
29
61
30
32
62
75
16
17
63
33
34
35
10
55
36
37
38
76
2
64
65
69
39
40
56
41
71
66
67
46
48
49
42
43
44
45
47
58
70
57
50
51
52
53
54
12
68
78
11
77
79
13

### MICRO J-CASE FUSES

1. TRLR BRK (30A)
2. TRLR BATT (30A)
74. ELC RNG BDS (30A)

### J-CASE FUSES

3. ABS PUMP (60A)
4. I/P BEC 1 (60A)
5. MSB PASS (40A)
6. 4WD TREC (30A)
7. ELEC PRK BRK (40A)
8. I/P BEC 2 (60A)
9. MSB DRVR (40A)
10. REAR DEFOG (30A)
11. STRTR (40A)
12. COOL FAN 1 (40A)
13. COOL FAN 2 (40A)
79. VACUUM PUMP (30A)

### MINI FUSES 2 PIN

14. TRLR STOP TRN LT (10A)
15. TRLR PRK LAMP (20A)
16. REV LAMP (10A)
17. TRLR STOP TRN RT (10A)

### MICRO FUSES 2 PIN

18. FUEL PUMP (20A)
19. ICCM (10A)
20. ESC ELC EXH (30A)
21. FPPM (30A)
22. UPFTR SW1 (5A)
23. UPFTR 2 (30A)
24. FRT/WPR (25A)
25. ABS VLV (25A)
26. UPFTR SW2 (5A)
27. UPFTR SW3 (5A)
28. PRK LAMP RT (15A)
29. PRK LAMP LT (15A)
30. UPFTR 3 (30A)
31. UPFTR SW4 (5A)
32. UPFTR 4 (30A)
33. BCK UP LAMP (10A)
34. ECM IGN (15A)
35. A/C CLTCH (10A)
36. HTD MIR (15A)
37. UPFTR 1 (30A)
38. CHMSL (10A)
39. MISC IGN (15A)
40. TRANS IGN (15A)
41. FUEL PUMP 2 (20A)
42. COOL FAN CLTCH (10A)
43. ENG (15A)
44. INJ A ODD (20A)
45. INJ B EVEN (20A)
46. O2 SNSR B (15A)
47. THROT CONT (15A)
48. HORN (15A)
49. FOG LAMP (15A)
50. O2 SNSR A (15A)
51. ECM (30A)
52. INT HTR (10A)
53. ACCY PWR MDL/TPIM PUMP (10A)
54. FRT WASH (15A)
76. MGU CLNT MTR (10A)
77. CABIN PMP MTR (10A)

### MICRO FUSES 3 PIN

55. AHA/AHA RVC (5A/5A)
56. A/C CMPRSR MDL/BATT PCK (10A/10A)
57. TCM / ECM (15A/15A)
58. HDLP RT / LT (10A/10A)

### MICRO RELAYS

59. FUEL PUMP
60. UPFTR 2
61. UPFTR 3
62. UPFTR 4
63. TRLR PRK LAMPS
64. RUN/CRNK
65. UPFTR 1
66. FUEL PUMP 2
67. A/C CNTRL
68. STRTR
70. ECM
75. MGU CLNT MTR

### MINI RELAYS

69. REAR DEFOG
78. VACUUM PUMP SW

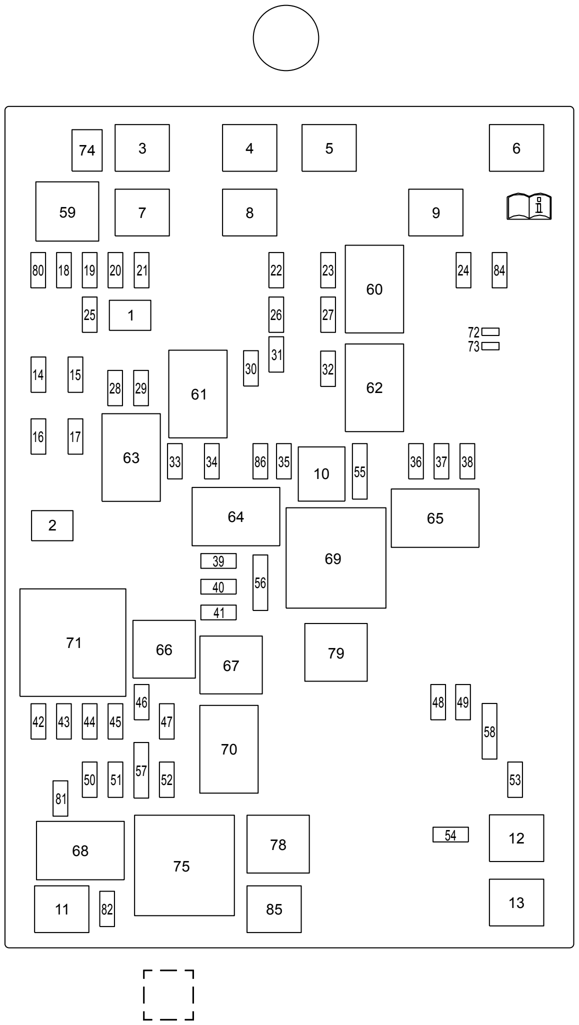
### SOLID STATE RELAY

71. VACUUM PUMP

### TEST POINTS

72. CKT 95
73. CKT 92

## X50A Fuse Block - Underhood Label (L5P)


74
3
4
5
6
59
7
8
9
80
18
19
20
21
22
23
60
24
84
25
1
26
27
72
73
31
14
15
28
29
61
30
32
62
16
17
63
33
34
86
35
10
55
36
37
38
2
64
65
69
39
56
40
41
71
66
67
79
48
49
46
42
43
44
45
47
58
70
50
51
57
52
53
81
68
75
78
54
12
11
82
85
13

### MICRO J-CASE FUSES

1. TRLR BRK (30A)
2. TRLR BATT (30A)
74. ELC RNG BDS (30A)

### J-CASE FUSES

3. ABS PUMP (60A)
4. I/P BEC 1 (60A)
5. MSB PASS (40A)
6. 4WD TREC (30A)
7. ELEC PRK BRK (40A)
8. I/P BEC 2 (60A)
9. MSB DRVR (40A)
10. REAR DEFOG (30A)
11. STRTR (40A)
12. COOL FAN 1 (40A)
13. COOL FAN 2 (40A)
85. FUEL HEATER (50A)

### MINI FUSES 2 PIN

14. TRLR STOP TRN LT (10A)
15. TRLR PRK LAMP (20A)
16. REV LAMP (10A)
17. TRLR STOP TRN RT (10A)

### MICRO FUSES 2 PIN

18. FUEL PUMP (20A)
19. ICCM (10A)
20. ESC ELC EXH (30A)
21. FPPM (30A)
22. UPFTR SW1 (5A)
23. UPFTR 2 (30A)
24. FRT/WPR (25A)
25. ABS VLV (25A)
26. UPFTR SW2 (5A)
27. UPFTR SW3 (5A)
28. PRK LAMP RT (15A)
29. PRK LAMP LT (15A)
30. UPFTR 3 (30A)
31. UPFTR SW4 (5A)
32. UPFTR 4 (30A)
33. BCK UP LAMP (10A)
34. ECM IGN (15A)
35. A/C CLTCH (10A)
36. HTD MIR (15A)
37. UPFTR 1 (30A)
38. CHMSL (10A)
39. MISC IGN (15A)
40. TRANS IGN (15A)
41. FUEL PUMP 2 (20A)
42. COOL FAN CLTCH (10A)
43. ENG (15A)
44. INJ A ODD (20A)
45. INJ B EVEN (20A)
46. AFTERBOIL (10A)
47. THROT CONT (15A)
48. HORN (15A)
49. FOG LAMP (15A)
50. O2 SNSR A (15A)
51. ECM (30A)
52. INT HTR (10A)
53. POLICE UPFTR (10A)
54. FRT WASH (15A)
80. LVL EXH SOL (15A)
81. DEF HEATER (25A)
82. FUEL HEATER (30)
84. TIM (25A)
86. EURO TRLR R/C (10A)

### MICRO FUSES 3 PIN

55. A/C CMPRSR MDL / BATT RVC (5A/5A)
56. SCRPM / SEN ENB (10A/10A)
57. TCM / ECM (15A/15A)
58. HDLP RT / LT (10A/10A)

### MICRO RELAYS

59. FUEL PUMP
60. UPFTR 2
61. UPFTR 3
62. UPFTR 4
63. TRLR PRK LAMPS
64. RUN/CRNK
65. UPFTR 1
66. FUEL PUMP 2
67. A/C CNTRL
68. STRTR
78. DEF HEATER
79. PT SENSOR

### MINI RELAYS

69. REAR DEFOG
70. ECM

### SOLID STATE RELAY

71. COOL FAN CLTCH

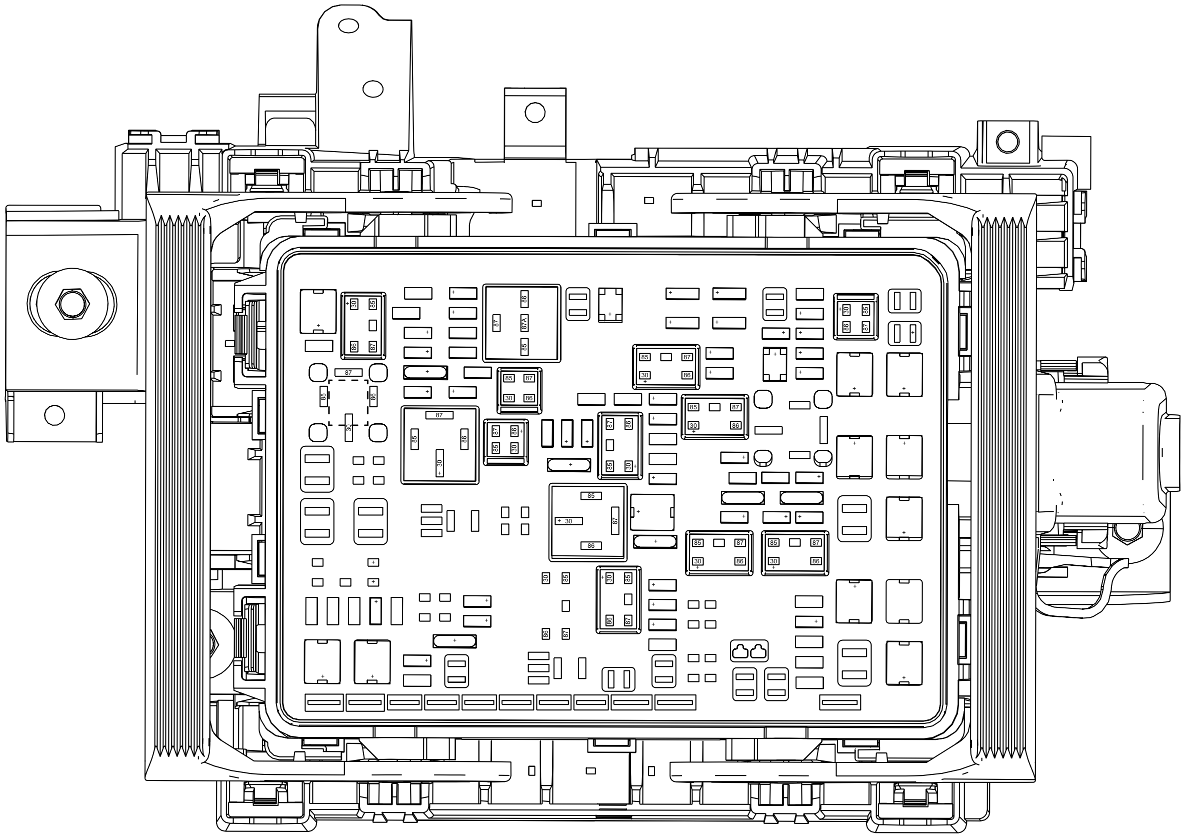
### ISO HC RELAY

75. FUEL HEATER

### TEST POINTS

72. CKT 95
73. CKT 92

## X50A Fuse Block - Underhood Top View (except HP5)



### *X50A Fuse Block – Underhood Label Usage*

| No. | Device Label Name | Device Assigned Name | Rating | Description |
|---|---|---|---|---|
| ***Micro J-Case Fuses*** | | | | |
| 1 | TRLR BRK | F1UA | 30A | •<br>•<br>• |
| 2 | TRLR BATT | F2UA | 30A | • |
| 74 | ELC RNG BDS | F74UA | 30A | • |
| ***J-Case Fuses*** | | | | |
| 3 | ABS PUMP | F3UA | 60A | • |
| 4 | I/P BEC 1 | F4UA | 60A | • |
| 5 | MSB PASS | F5UA | 40A | • |
| | | | | |

| | | | | |
|---|---|---|---|---|
| 5 | MSB PASS | F5UA | 40A | • |
| 6 | 4WD TREC | F6UA | 30A | •<br>• |
| 7 | ELEC PRK BRK | F7UA | 40A | • |
| 8 | I/P BEC 2 | F8UA | 60A | • |
| 9 | MSB DRVR | F9UA | 40A | • |
| 10 | REAR DEFOG | F10UA | 30A | • |
| 11 | STRTR | F11UA | 40A | • |
| 12 | COOL FAN 1 | F12UA | 40A | • |
| 13 | COOL FAN 2 | F13UA | 40A | • |
| 85 | FUEL HEATER | F85UA | 50A | • |
| | | | | |
| 14 | TRLR STOP TRN LT | F14UA | 10A | • |
| 15 | TRLR PRK LAMP | F15UA | 20A | • |
| 16 | REV LAMP | F16UA | 10A | • |
| 17 | TRLR STOP TRN RT | F17UA | 10A | • |
| | | | | |
| 18 | FUEL PUMP | F18UA | 20A | • |
| 19 | ICCM | F19UA | 10A | • |
| 20 | ESC ELC EXH | F20UA | 30A | • |
| 21 | FPPM | F21UA | 30A | •<br>• |
| 22 | UPFTR SW1 | F22UA | 5A | •<br>• |
| 23 | UPFTR 2 | F23UA | 30A | •<br>• |
| 24 | FRT/WPR | F24UA | 25A | •<br>• |
| 25 | ABS VLV | F25UA | 25A | • |
| | | | | |

| | | | | |
|---|---|---|---|---|
| 26 | UPFTR SW2 | F26UA | 5A | •<br>• |
| 27 | UPFTR SW3 | F27UA | 5A | •<br>• |
| 28 | PRK LAMP RT | F28UA | 15A | •<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>• |
| 29 | PRK LAMP LT | F29UA | 15A | •<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>• |
| 30 | UPFTR 3 | F30UA | 30A | •<br>• |
| 31 | UPFTR SW4 | F31UA | 5A | •<br>• |
| 32 | UPFTR 4 | F32UA | 30A | •<br>• |
| 33 | BCK UP LAMP | F33UA | 10A | •<br>• |

| | | | | |
|---|---|---|---|---|
| | | | | •<br>•<br>• |
| 34 | ECM IGN | F34UA | 15A | •<br>•<br>• |
| 35 | A/C CLTCH | F35UA | 10A | • |
| 36 | HTD MIR | F36UA | 15A | •<br>• |
| 37 | UPFTR 1 | F37UA | 30A | •<br>• |
| 38 | CHMSL | F38UA | 10A | • |
| 39 | MISC IGN | F39UA | 10A | • |
| 40 | TRANS IGN | F40UA | 15A | •<br>•<br>• |
| 41 | FUEL PUMP 2 | F41UA | 20A | • |
| 42 | COOL FAN CLTCH | F42UA | 10A | • |
| 43 | ENG | F43UA | 15A | •<br>•<br>• |
| 44 | INJ A ODD | F44UA | 20A | •<br>•<br>•<br>•<br>•<br>• |
| 45 | INJ B EVEN | F45UA | 20A | •<br>•<br>•<br>•<br>•<br>• |
| 46 | O2 SNSR B | F46UA | 15A | •<br>• |
| | | | | |

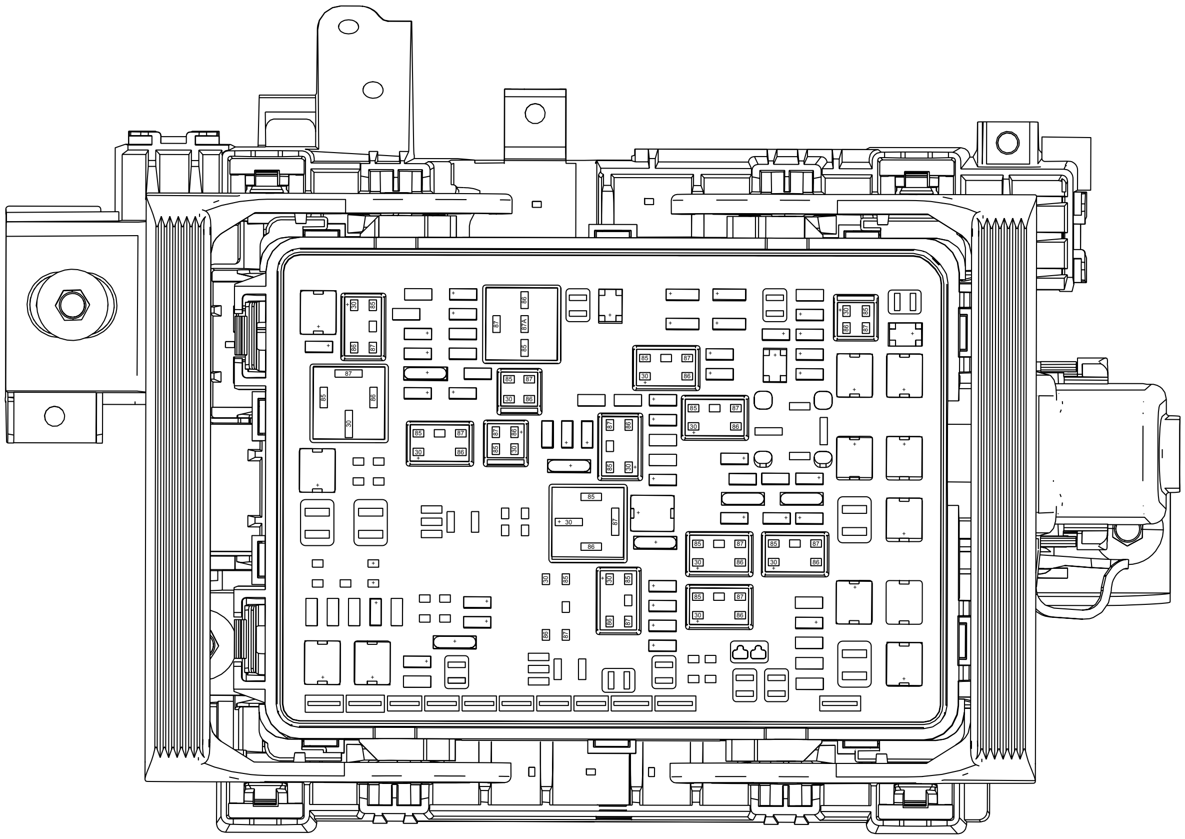
| | | | | |
|---|---|---|---|---|
| | | | | • |
| 47 | THROT CONT | F47UA | 15A | • |
| 48 | HORN | F48UA | 15A | • |
| 49 | FOG LAMP | F49UA | 15A | •<br>• |
| 50 | O2 SNSR A | F50UA | 15A | •<br>•<br>•<br>•<br>•<br>• |
| 51 | ECM | F51UA | 30A | • |
| 52 | INT HTR | F52UA | 10A | • |
| 53 | ACCY PWR MDL/TPIM PUMP | F53UA | 10A | • |
| 54 | FRT WASH | F54UA | 15A | • |
| 80 | LVL EXH SOL | F80UA | 15A | • |
| 81 | DEF HEATER | F81UA | 25A | • |
| 82 | FUEL HEATER | F82UA | 30A | • |
| 84 | TIM | F84UA | 25A | • |
| 86 | EURO TRLR R/C | F86UA | 10A | • |
| | | | | |
| 55 | A/C CMPRSR MDL/BATT RVC | F55UA | 5A | •<br>• |
| 56 | SCRPM/SEN ENB | F56UA | 10A | •<br>•<br>•<br>•<br>•<br>• |
| 57 | TCM / ECM | F57UA | 15A | •<br>•<br>• |

|  |  |  |  |  |
|---|---|---|---|---|
|  |  |  |  | • |
| 58 | HDLP RT / LT | F58UA | 10A | •<br>•<br>•<br>• |
|  |  |  |  |  |
| 59 | FUEL PUMP | KR23A Fuel Pump Relay | — | •<br>• |
| 60 | UPFTR 2 | KR161B Configurable Provision Relay 2 | — | • |
| 61 | UPFTR 3 | KR161C Configurable Provision Relay 3 | — | • |
| 62 | UPFTR 4 | KR161D Configurable Provision Relay 4 | — | • |
| 63 | TRLR PRK LAMPS | KR125 Trailer Park Lamps Relay | — | •<br>•<br>•<br>• |
| 64 | RUN/CRNK | KR73 Ignition Main relay | — | •<br>•<br>•<br>•<br>•<br>•<br>• |
| 65 | UPFTR 1 | KR161A Configurable Provision Relay 1 | — | • |
| 66 | FUEL PUMP 2 | KR23B Fuel Pump Relay − Secondary | — | • |
| 67 | A/C CNTRL | KR29 A/C Compressor Clutch Relay | — | •<br>• |
| 68 | STRTR | KR27 Starter Relay | — | • |
| 78 | DEF HEATER | KR121A Reductant Control Module Relay 1 | — | •<br>• |
| 79 | PT SENSOR | KR121B Reductant Control Module Relay 2 | — | •<br>• |
|  |  |  |  |  |
|  |  |  |  |  |

| | | | | |
|---|---|---|---|---|
| 69 | REAR DEFOG | KR5 Rear Defogger Relay | — | •<br>• |
| 70 | ECM | KR75 Engine Controls Ignition Relay | — | •<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>• |
| | | | | |
| 71 | COOL FAN CLTCH | KR20F Cooling Fan Relay | — | • |
| | | | | |
| 75 | FUEL HEATER | KR22 Fuel Heater Relay | — | •<br>• |
| | | | | |
| 72 | CKT 95 | 72 | — | • |
| 73 | CKT 92 | 73 | — | • |
| | | | | |
| — | — | KR3 Horn Relay | — | • F48UA |
| — | — | KR11 Windshield Washer Pump Relay | — | • F54UA |
| — | — | KR12B Windshield Wiper Relay | — | • KR12C Windshield Wiper Speed Control Relay |
| — | — | KR12C Windshield Wiper Speed Control Relay | — | • M75 Windshield Wiper Motor |
| — | — | KR46 Front Fog Lamp Relay | — | • F49UA (T3U) |
| — | — | KR48 Headlamp High Beam Relay | — | • F58UA |
| — | — | KR59 Stop Lamp Relay | — | • F38UA |
| — | — | KR61 Trailer Backup Lamp Relay | — | • F16UA<br>• F33UA |
| | | | | |

| | | | | |
|---|---|---|---|---|
| — | — | KR63L Trailer Stop/Turn Signal Lamp Relay-Left | — | • F14UA |
| — | — | KR63R Trailer Stop/Turn Signal Lamp Relay-Right | — | • F17UA |

## X50A Fuse Block - Underhood Top View (HP5)



## *X50A Fuse Block – Underhood Label Usage (HP5)*

| No. | Device Label Name | Device Assigned Name | Rating | Description |
|---|---|---|---|---|
| ***Micro J-Case Fuses*** | | | | |
| 1 | TRLR BRK | F1UA | 30A | •<br>•<br>• |
| 2 | TRLR BATT | F2UA | 30A | • |
| 74 | ELC RNG BDS | F74UA | 30A | • |
| ***J-Case Fuses*** | | | | |
| 3 | ABS PUMP | F3UA | 60A | • |
| 4 | I/P BEC 1 | F4UA | 60A | • |
| 5 | MSB PASS | F5UA | 40A | • |

|  |  |  |  |  |
|---|---|---|---|---|
| 5 | MSB PASS | F5UA | 40A | • |
| 6 | 4WD TREC | F6UA | 30A | •<br>• |
| 7 | ELEC PRK BRK | F7UA | 40A | • |
| 8 | I/P BEC 2 | F8UA | 60A | • |
| 9 | MSB DRVR | F9UA | 40A | • |
| 10 | REAR DEFOG | F10UA | 30A | • |
| 11 | STRTR | F11UA | 40A | • |
| 12 | COOL FAN 1 | F12UA | 40A | • |
| 13 | COOL FAN 2 | F13UA | 40A | • |
| 79 | VACUUM PUMP | F79UA | 30A | • |
|  |  |  |  |  |
| 14 | TRLR STOP TRN LT | F14UA | 10A | • |
| 15 | TRLR PRK LAMP | F15UA | 20A | • |
| 16 | REV LAMP | F16UA | 10A | • |
| 17 | TRLR STOP TRN RT | F17UA | 10A | • |
|  |  |  |  |  |
| 18 | FUEL PUMP | F18UA | 20A | • |
| 19 | ICCM | F19UA | 10A | • |
| 20 | ESC ELC EXH | F20UA | 30A | • |
| 21 | FPPM | F21UA | 30A | •<br>• |
| 22 | UPFTR SW1 | F22UA | 5A | •<br>• |
| 23 | UPFTR 2 | F23UA | 30A | •<br>• |
| 24 | FRT/WPR | F24UA | 25A | •<br>• |
| 25 | ABS VLV | F25UA | 25A | • |
|  |  |  |  |  |

|  |  |  |  |  |
|---|---|---|---|---|
| 26 | UPFTR SW2 | F26UA | 5A | •<br>• |
| 27 | UPFTR SW3 | F27UA | 5A | •<br>• |
| 28 | PRK LAMP RT | F28UA | 15A | •<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>• |
| 29 | PRK LAMP LT | F29UA | 15A | •<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>• |
| 30 | UPFTR 3 | F30UA | 30A | •<br>• |
| 31 | UPFTR SW4 | F31UA | 5A | •<br>• |
| 32 | UPFTR 4 | F32UA | 30A | •<br>• |
| 33 | BCK UP LAMP | F33UA | 10A | •<br>•<br>• |

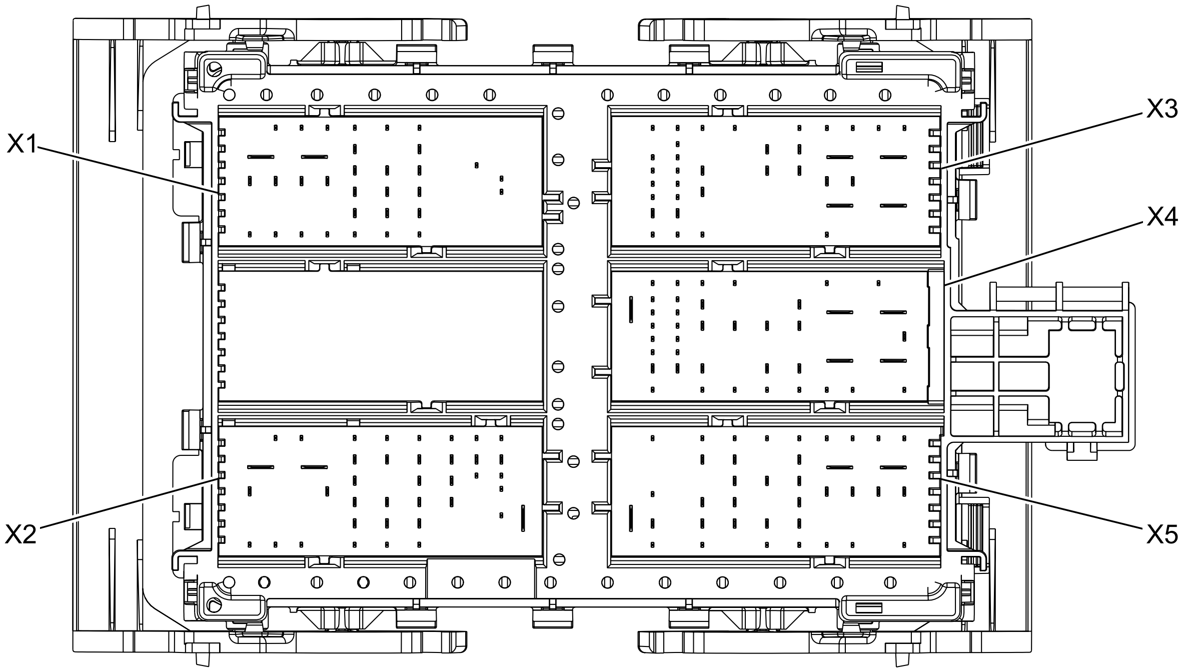
|  |  |  |  |  |
|---|---|---|---|---|
|  |  |  |  | •<br>• |
| 34 | ECM IGN | F34UA | 15A | •<br>•<br>• |
| 35 | A/C CLTCH | F35UA | 10A | • |
| 36 | HTD MIR | F36UA | 15A | •<br>• |
| 37 | UPFTR 1 | F37UA | 30A | •<br>• |
| 38 | CHMSL | F38UA | 10A | • |
| 39 | MISC IGN | F39UA | 10A | • |
| 40 | TRANS IGN | F40UA | 15A | •<br>•<br>• |
| 41 | FUEL PUMP 2 | F41UA | 20A | • |
| 42 | COOL FAN CLTCH | F42UA | 10A | • |
| 43 | ENG | F43UA | 15A | •<br>•<br>• |
| 44 | INJ A ODD | F44UA | 20A | •<br>•<br>•<br>•<br>• |
| 45 | INJ B EVEN | F45UA | 20A | •<br>•<br>•<br>•<br>• |
| 46 | O2 SNSR B | F46UA | 15A | •<br>• |
| 47 | THROT CONT | F47UA | 15A | •<br>• |

|  |  |  |  |  |
|---|---|---|---|---|
| 48 | HORN | F48UA | 15A | • |
| 49 | FOG LAMP | F49UA | 15A | •<br>• |
| 50 | O2 SNSR A | F50UA | 15A | •<br>•<br>•<br>•<br>• |
| 51 | ECM | F51UA | 30A | • |
| 52 | INT HTR | F52UA | 10A | • |
| 53 | ACCY PWR MDL/TPIM PUMP | F53UA | 10A | • |
| 54 | FRT WASH | F54UA | 15A | • |
| 76 | MGU CLNT MTR | F76UA | 10A | • |
| 77 | CABIN PMP MTR | F77UA | 10A | • |
|  |  |  |  |  |
| 55 | AHA/AHA RVC | F55UA | 5A | • |
| 56 | A/C CMPRSR MDL/BATT PCK | F56UA | 10A | • |
| 57 | TCM / ECM | F57UA | 15A | •<br>•<br>• |
| 58 | HDLP RT / LT | F58UA | 10A | •<br>•<br>•<br>• |
|  |  |  |  |  |
| 59 | FUEL PUMP | KR23A Fuel Pump Relay | — | • |
| 60 | UPFTR 2 | KR161B Configurable Provision Relay 2 | — | • |
| 61 | UPFTR 3 | KR161C Configurable Provision Relay 3 | — | • |
| 62 | UPFTR 4 | KR161D Configurable Provision Relay 4 | — | • |

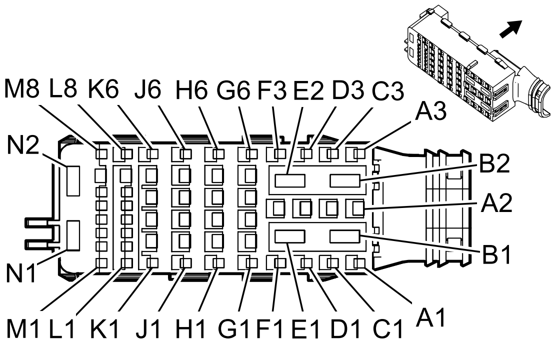
| | | | | |
|---|---|---|---|---|
| | | Provision Relay 1 | | |
| 63 | TRLR PRK LAMPS | KR125 Trailer Park Lamps Relay | — | •<br>•<br>•<br>• |
| 64 | RUN/CRNK | KR73 Ignition Main relay | — | •<br>•<br>•<br>•<br>•<br>• |
| 65 | UPFTR 1 | KR161A Configurable Provision Relay 1 | — | • |
| 66 | FUEL PUMP 2 | KR23B Fuel Pump Relay − Secondary | — | • |
| 67 | A/C CNTRL | KR29 A/C Compressor Clutch Relay | — | •<br>• |
| 68 | STRTR | KR27 Starter Relay | — | • |
| 70 | ECM | KR75 Engine Controls Ignition Relay | — | •<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>• |
| 75 | MGU CLNT MTR | KR133 | — | • |
| | | | | |
| 69 | REAR DEFOG | KR5 Rear Defogger Relay | — | •<br>• |
| 78 | VACUUM PUMP SW | KR73B Ignition Main Relay 2 | — | • |
| | | | | |
| 71 | VACUUM PUMP | KR14 Brake Booster Pump Motor Relay | — | • |
| | | | | |
| | | | | |

|  |  |  |  |  |
|---|---|---|---|---|
| 72 | CKT 95 | 72 | — | • |
| 73 | CKT 92 | 73 | — | • |
|  |  |  |  |  |
| — | — | KR3 Horn Relay | — | • F48UA |
| — | — | KR11 Windshield Washer Pump Relay | — | • F54UA |
| — | — | KR12B Windshield Wiper Relay | — | • KR12C Windshield Wiper Speed Control Relay |
| — | — | KR12C Windshield Wiper Speed Control Relay | — | • M75 Windshield Wiper Motor |
| — | — | KR33 Auxiliary Heater Coolant Pump Relay | — | • F77UA |
| — | — | KR46 Front Fog Lamp Relay | — | • F49UA (T3U) |
| — | — | KR48 Headlamp High Beam Relay | — | • F58UA |
| — | — | KR59 Stop Lamp Relay | — | • F38UA |
| — | — | KR61 Trailer Backup Lamp Relay | — | • F16UA<br>• F33UA |
| — | — | KR63L Trailer Stop/Turn Signal Lamp Relay-Left | — | • F14UA |
| — | — | KR63R Trailer Stop/Turn Signal Lamp Relay-Right | — | • F17UA |

## X50A Fuse Block - Underhood Bottom View



# X50A Fuse Block - Underhood X1



## Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33116190

Service Connector: 19329923

Description: 58-Way F 1.5, 2.8, 800 Metri-Pack Series (BN)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575718 | J-35616-44 (YE) | J-38125-558 | 12110127 | Delphi 19 | F | G |
| II | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| III | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

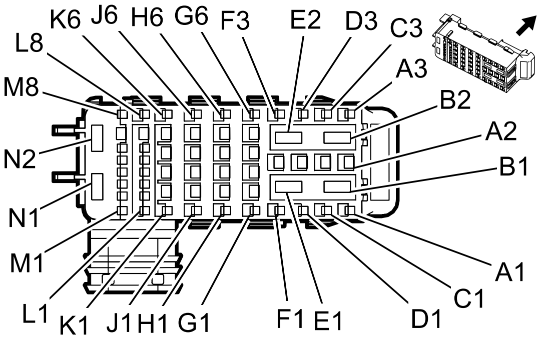
## *X50A Fuse Block - Underhood X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A1 - B1 | — | — | — | Not Occupied | — | — |
| B2 | 4 | RD/GY | 642 | Battery Positive Voltage | I | — |
| C1 - C3 | — | — | — | Not Occupied | — | — |
| D1 | 0.75 | YE | 712 | Left Headlamp Low Beam Control | III | — |
| D2 | — | — | — | Not Occupied | — | — |
| D3 | 0.75 | L-GN/VT | 1315 | Right Front Turn Signal Lamp Control | III | — |
| E1 | — | — | — | Not Occupied | — | — |
| E2 | 4 | RD/WH | 342 | Battery Positive Voltage | I | — |
| F1 | 0.5 | GY/BN | 309 | Right Park Lamp Control | III | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| F2 | 0.75 | GY/VT | 228 | Windshield Washer Pump Control | II | — |
| F3 | 0.75 | D-BU/WH | 1314 | Left Front Turn Signal Lamp Control | III | — |
| G1 | 0.5 | VT/GY | 709 | Left Park Lamp Control | III | — |
| G2 | — | — | — | Not Occupied | — | — |
| G3 | 0.5 | VT/GY | 3139 | Run/Crank Ignition 1 Voltage | II | — |
| G4 | 0.5 | BK | 150 | Ground | II | — |
| G5 - H1 | — | — | — | Not Occupied | — | — |
| H2 | 0.75 | GY/D-BU | 7538 | Left Front DRL Control | II | — |
| H3 | — | — | — | Not Occupied | — | — |
| H4 | 0.5 | WH | 311 | Right Headlamp High Beam Control | II | — |
| H5 | — | — | — | Not Occupied | — | — |
| H6 | 0.75 | D-BU/BN | 7539 | Right Front DRL Control | III | — |
| J1 | — | — | — | Not Occupied | — | — |
| J2 | 0.75 | BN/GY | 29 | Horn Control | II | — |
| J3 | 0.5 | BN/VT | 2234 | Front Fog Lamp Control | II | — |
| J4 | 0.5 | WH | 711 | Left Headlamp High Beam Control | II | — |
| J5 | 0.75 | YE | 312 | Right Headlamp Low Beam Control | II | — |
| J6 - L5 | — | — | — | Not Occupied | — | — |
| L6 | 0.5 | GY/D-BU | 3769 | MGU Coolant Pump Control | III | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| L7 - M3 | — | — | — | Not Occupied | — | — |
| M4 | 0.5 | WH/D-BU | 3203 | Right Headlamp Bulb Outage Signal | III | — |
| M5 | 0.5 | D-BU/VT | 3204 | Left Headlamp Bulb Outage Signal | III | — |
| M6 - N2 | — | — | — | Not Occupied | — | — |

# X50A Fuse Block - Underhood X2



## Connector Part Information

Harness Type: Engine

OEM Connector: 33116191

Service Connector: 19332891

Description: 58-Way F 1.5, 2.8, 800 Metri-Pack Series (GN)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575718 | J-35616-44 (YE) | J-38125-558 | 12110127 | Delphi 19 | F | G |
| II | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| III | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| IV | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

## *X50A Fuse Block - Underhood X2*

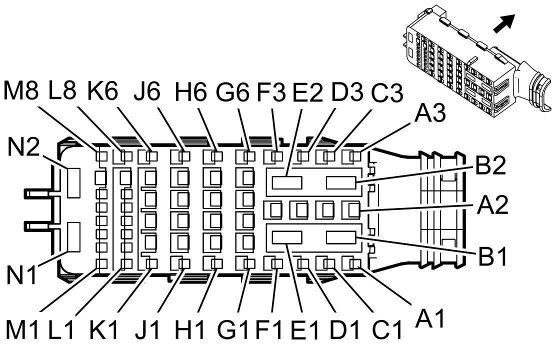
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A1 | 0.5 | WH/GY | 459 | A/C Compressor Clutch Relay Control | IV | — |
| A2 | — | — | — | Not Occupied | — | — |
| A3 | 0.5 | L-GN/D-BU | 3889 | DEF Power Module Relay Control | IV | L5P |
| | 0.5 | VT/L-GN | 439 | Run/Crank Ignition 1 Voltage | IV | L8B |
| B1 - B2 | — | — | — | Not Occupied | — | — |
| C1 | 0.75 | BN/L-GN | 59 | A/C Compressor Clutch Control | IV | — |
| C2 | — | — | — | Not Occupied | — | — |
| C3 | 0.5 | D-BU/L-GN | 7071 | Heater Fuel Control | IV | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| D1 | 0.5 | L-GN/D-BU | 3889 | DEF Power Module Relay Control | IV | — |
| D2 | — | — | — | Not Occupied | — | — |
| D3 | 0.5 | YE/BK | 625 | Starter Enable Relay Control | IV | — |
| E1 | — | — | — | Not Occupied | — | — |
| E2 | 3 | YE/VT | 6 | Starter Solenoid Crank Ignition Voltage | I | L5P |
|  | 4 | YE | 6 | Starter Solenoid Crank Ignition Voltage | I | L96/LV1/LV3/L83/L86/L8B |
| F1 | — | — | — | Not Occupied | — | — |
| F2 | 2.5 | BK | 550 | Ground | II | L96 |
|  | 2.5 | BK | 550 | Ground | III | -L96 |
| F3 | 0.5 | WH/BN | 1089 | Coolant Pump Motor Relay Control | IV | L5P |
|  | 0.5 | GY/BN | 2410 | — | IV | L83/L86/LV1/LV3 |
| G1 | 0.5 | WH | 2368 | Cooling Fan Control Signal | IV | — |
| G2 | 2.5 | D-BU | 3921 | DEF Heater Supply 1 | III | — |
| G3 | 0.5 | VT/D-BU | 5293 | Powertrain Main Relay Fused Supply 4 | II | L83/L86/L8B/LV1/LV3 |
|  | 0.75 | VT/D-BU | 5293 | Powertrain Main Relay Fused Supply 4 | III | L96 |
| G4 | 2.5 | VT/D-BU | 5290 | Powertrain Main Relay Fused Supply 1 | III | — |
| G5 | 0.75 | RD/L-GN | 1840 | Battery Positive Voltage | II | L83/L86/L8B/LV1/LV3 |
|  | 1.5 | RD/L-GN | 1840 | Battery Positive Voltage | III | L96 |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| G6 | 0.75 | RD/WH | 3440 | Battery Positive Voltage | IV | L5P |
|  | 0.5 | RD/WH | 3440 | Battery Positive Voltage | IV | L96/L83/L86 |
| H1 | — | — | — | Not Occupied | — | — |
| H2 | 0.75 | VT/D-BU | 5291 | Powertrain Main Relay Fused Supply 2 | II | L83/L86/L8B/LV1/LV3 |
|  | 1.5 | VT/D-BU | 5291 | Powertrain Main Relay Fused Supply 2 | II | L96 |
| H3 | 0.75 | VT/D-BU | 5293 | Powertrain Main Relay Fused Supply 4 | II | — |
| H4 | — | — | — | Not Occupied | — | — |
| H5 | 0.5 | RD/BN | 440 | Battery Positive Voltage | II | — |
| H6 | 0.5 | YE | 5991 | Powertrain Relay Coil Control | IV | — |
| J1 | — | — | — | Not Occupied | — | — |
| J2 | 0.5 | VT/D-BU | 5294 | Powertrain Main Relay Fused Supply 5 | II | — |
| J3 | 0.75 | VT/D-BU | 5291 | Powertrain Main Relay Fused Supply 2 | III | — |
| J4 | 0.75 | VT/D-BU | 5292 | Powertrain Main Relay Fused Supply 3 | III | L83/L86/L8B/LV1/LV3 |
|  | 1.5 | VT/D-BU | 5292 | Powertrain Main Relay Fused Supply 3 | II | L96 |
| J5 | 0.5 | YE/D-BU | 5126 | After Boil Heater Pump Control | II | L5P |
|  | 0.5 | VT/D-BU | 5294 | Powertrain Main Relay Fused Supply 5 | II | -L5P |
| J6 | 0.75 | VT/D-BU | 5290 | Powertrain Main Relay Fused Supply 1 | IV | — |
| K1 - K2 | — | — | — | Not Occupied | — | — |
| K3 | 0.75 | VT/D-BU | 5291 | Powertrain Main Relay Fused Supply 2 | II | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| K4 | 0.75 | VT/D-BU | 5292 | Powertrain Main Relay Fused Supply 3 | II | — |
| K5 | 2.5 | VT/D-BU | 3674 | NOx Sensor 1 Control | III | L5P |
| | 0.75 | VT/D-BU | 5292 | Powertrain Main Relay Fused Supply 3 | II | -L5P |
| K6 | 0.5 | VT/L-GN | 4320 | Selective Catalytic Reduction Power Module Wake-Up Signal | IV | — |
| L1 - L5 | — | — | — | Not Occupied | — | — |
| L6 | 0.5 | RD/WH | 2740 | Battery Positive Voltage | IV | — |
| L7 | 0.5 | VT/BK | 2139 | Run/Crank Ignition 1 Voltage | II | — |
| L8 | — | — | — | Not Occupied | — | — |
| M1 | 0.5 | YE/D-BU | 1465 | Secondary Fuel Pump Relay Control | IV | — |
| M2 | — | — | — | Not Occupied | — | — |
| M3 | 0.5 | WH/BK | 2366 | Cooling Fan Control Relay Speed Signal | IV | — |
| M4 | — | — | — | Not Occupied | — | — |
| M5 | 0.5 | GY | 5660 | Fuel Pump Controller Data Out Signal | IV | L83/L86/L8B/LV1/LV3 |
| | 0.5 | L-GN/GY | 465 | Fuel Pump Primary Relay Control | IV | L96/L5P |
| M6 | 0.75 | BK/WH | 451 | Signal Ground | IV | — |
| M7 | — | — | — | Not Occupied | — | — |
| M8 | 0.5 | VT/WH | 239 | Run/Crank Ignition 1 Voltage | IV | — |
| N1 | 2.5 | RD/L-GN | 742 | Battery Positive Voltage | I | — |
| N2 | — | — | — | Not Occupied | — | — |

## X50A Fuse Block - Underhood X3



### Connector Part Information

Harness Type: Body

OEM Connector: 33116188

Service Connector: 19332892

Description: 58-Way F 1.5, 2.8, 800 Metri-Pack Series (GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575718 | J-35616-44 (YE) | J-38125-558 | 12092445 | Delphi 18 | G | G |
| II | 13575718 | J-35616-44 (YE) | J-38125-558 | 12110127 | Delphi 19 | F | G |
| III | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| IV | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| V | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

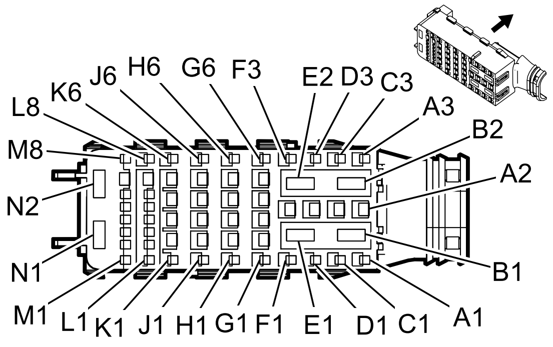
### *X50A Fuse Block - Underhood X3*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A1 | 0.5 | YE/D-BU | 18 | Left Rear Stop/Turn Lamp Control | V | — |
| A2 - A3 | — | — | — | Not Occupied | — | — |
| B1 | 4 | RD/GY | 1342 | Battery Positive Voltage | I | — |
| B2 | 2.5 | RD/D-BU | 1842 | Battery Positive Voltage | II | — |
| C1 | 0.5 | BN/L-GN | 19 | Right Rear Stop/Turn Lamp Control | V | — |
| C2 - C3 | — | — | — | Not Occupied | — | — |
| D1 | 0.75 | L-GN/VT | 1315 | Right Front Turn Signal Lamp Control | V | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| D2 | 0.35 | D-BU/VT | 1124 | Door Lock Key Switch Unlock Signal | III | — |
| D3 - E2 | — | — | — | Not Occupied | — | — |
| F1 | 0.75 | D-BU/WH | 1314 | Left Front Turn Signal Lamp Control | V | — |
| F2 | 0.35 | WH/VT | 3270 | Driver Door Lock Motor Status Signal | III | — |
| F3 | 0.5 | YE/WH | 962 | — | V | — |
| G1 | 0.75 | D-BU/BN | 7539 | Right Front DRL Control | V | — |
| G2 - H1 | — | — | — | Not Occupied | — | — |
| H2 | 1 | BK | 550 | Ground | III | — |
| H3 - H6 | — | — | — | Not Occupied | — | — |
| J1 | 0.35 | WH/VT | 860 | Front Windshield Wiper Switch High Signal | V | — |
| J2 - J6 | — | — | — | Not Occupied | — | — |
| K1 | 0.5 | VT/WH | 5065 | Stop Lamp Relay Coil Control | V | — |
| K2 | — | — | — | Not Occupied | — | — |
| K3 | 1 | YE/BN | 95 | Windshield Wiper Motor Low Speed Control | III | — |
| K4 | 1 | WH | 92 | Windshield Wiper Motor High Speed Control | III | — |
| K5 | — | — | — | Not Occupied | — | — |
| K6 | 0.35 | BN/GY | 2268 | Windshield Washer Relay Control | V | — |
| L1 | — | — | — | Not Occupied | — | — |
| L2 | 0.35 | BN/VT | 1969 | Headlamp High Beam Relay Control | V | — |
| L3 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| L3 | — | — | — | Not Occupied | — | — |
| L4 | 0.35 | GY | 91 | Windshield Wiper Motor Relay Coil Control | V | — |
| L5 | 0.5 | BN | 1317 | Fog Lamp Relay Control | V | — |
| L6 | 0.35 | BN/WH | 28 | Horn Relay Control | V | — |
| L7 | 0.5 | BN/YE | 2267 | Mirror Heating Element Control | III | — |
| L8 | — | — | — | Not Occupied | — | — |
| M1 | 0.75 | YE | 312 | Right Headlamp Low Beam Control | V | — |
| M2 - M4 | — | — | — | Not Occupied | — | — |
| M5 | 0.5 | RD/WH | 961 | — | V | — |
| M6 | 0.5 | VT/GY | 1054 | Stop Lamp Control | V | — |
| M7 | 2.5 | D-BU | 965 | — | IV | — |
| M8 - N2 | — | — | — | Not Occupied | — | — |

# X50A Fuse Block - Underhood X4



## Connector Part Information

Harness Type: Body

OEM Connector: 33116186

Service Connector: 19332893

Description: 58-Way F 1.5, 2.8, 800 Metri-Pack Series (BK)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575718 | J-35616-44 (YE) | J-38125-558 | 12110127 | Delphi 19 | F | G |
| II | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| III | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| IV | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

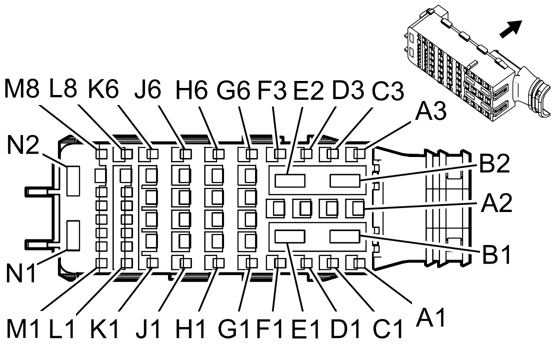
## *X50A Fuse Block - Underhood X4*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A1 - A2 | — | — | — | Not Occupied | — | — |
| A3 | 0.5 | L-GN/WH | 24 | Backup Lamp Control | IV | — |
| B1 | — | — | — | Not Occupied | — | — |
| B2 | 5 | RD/VT | 842 | Battery Positive Voltage | I | — |
| C1 - D2 | — | — | — | Not Occupied | — | — |
| D3 | 0.35 | VT/L-GN | 1739 | Run/Crank Ignition 1 Voltage | IV | — |
| E1 | — | — | — | Not Occupied | — | — |
| E2 | 5 | RD/D-BU | 42 | Battery Positive Voltage | I | — |
| F1 - F2 | — | — | — | Not Occupied | — | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| F1 - F2 | — | — | — | Not Occupied | — | — |
| F3 | 0.35 | L-GN/WH | 24 | Backup Lamp Control | IV | — |
| G1 | — | — | — | Not Occupied | — | — |
| G2 | 2.5 | GY/BK | 966 | — | III | — |
| G3 - G5 | — | — | — | Not Occupied | — | — |
| G6 | 0.5 | YE/BK | 5356 | Left Tail Lamp Outage Detection Signal | IV | — |
| H1 - H4 | — | — | — | Not Occupied | — | — |
| H5 | 2.5 | RD/L-GN | 242 | Battery Positive Voltage | III | — |
| H6 | 0.5 | VT/YE | 5357 | Right Tail Lamp Outage Detection Signal | IV | — |
| J1 | 0.75 | GY/D-BU | 7538 | Left Front DRL Control | IV | — |
| J2 - J5 | — | — | — | Not Occupied | — | — |
| J6 | 0.75 | BK/WH | 451 | Signal Ground | IV | — |
| K1 | 0.75 | YE | 712 | Left Headlamp Low Beam Control | IV | — |
| K2 | 2.5 | RD/L-GN | 968 | — | III | — |
| K3 - K4 | — | — | — | Not Occupied | — | — |
| K5 | 2.5 | YE/BN | 967 | — | III | — |
| K6 | 0.5 | VT/GY | 709 | Left Park Lamp Control | IV | — |
| L1 | 0.5 | WH/D-BU | 964 | — | IV | — |
| L2 | 0.35 | YE/GY | 5187 | Right Trailer Turn Signal Lamp Control | IV | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| L3 | 0.35 | D-BU/BN | 38 | Backup Lamp Relay Control | IV | — |
| L4 | 0.35 | D-BU/WH | 5186 | Left Trailer Turn Signal Lamp Control | IV | — |
| L5 | 0.35 | D-BU | 45 | Park Lamp Relay Control | IV | — |
| L6 | 0.5 | L-GN/GY | 963 | — | IV | — |
| L7 | 0.5 | VT/BK | 2139 | Run/Crank Ignition 1 Voltage | II | — |
| L8 | — | — | — | Not Occupied | — | — |
| M1 | 0.75 | RD/YE | 2340 | Battery Positive Voltage | IV | — |
| M2 | 0.35 | BN/VT | 193 | Rear Defog Relay Control | IV | — |
| M3 - M4 | — | — | — | Not Occupied | — | — |
| M5 | 0.35 | L-GN/VT | 5199 | Run/Crank Relay Coil Control | IV | — |
| M6 - M8 | — | — | — | Not Occupied | — | — |
| N1 | 2.5 | BN/VT | 293 | Rear Defog Element Control | I | — |
| N2 | — | — | — | Not Occupied | — | — |

## X50A Fuse Block - Underhood X5



### Connector Part Information

Harness Type: Chassis

OEM Connector: 33116189

Service Connector: 19332894

Description: 58-Way F 1.5, 2.8, 800 Metri-Pack Series (NA)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575718 | J-35616-44 (YE) | J-38125-558 | 12110127 | Delphi 19 | F | G |
| II | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| III | 13575832 | J-35616-35 (VT) | J-38125-11A | 7116-4112-02 | Yazaki 9 | C | D |
| IV | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| V | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| VI | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

### *X50A Fuse Block - Underhood X5*

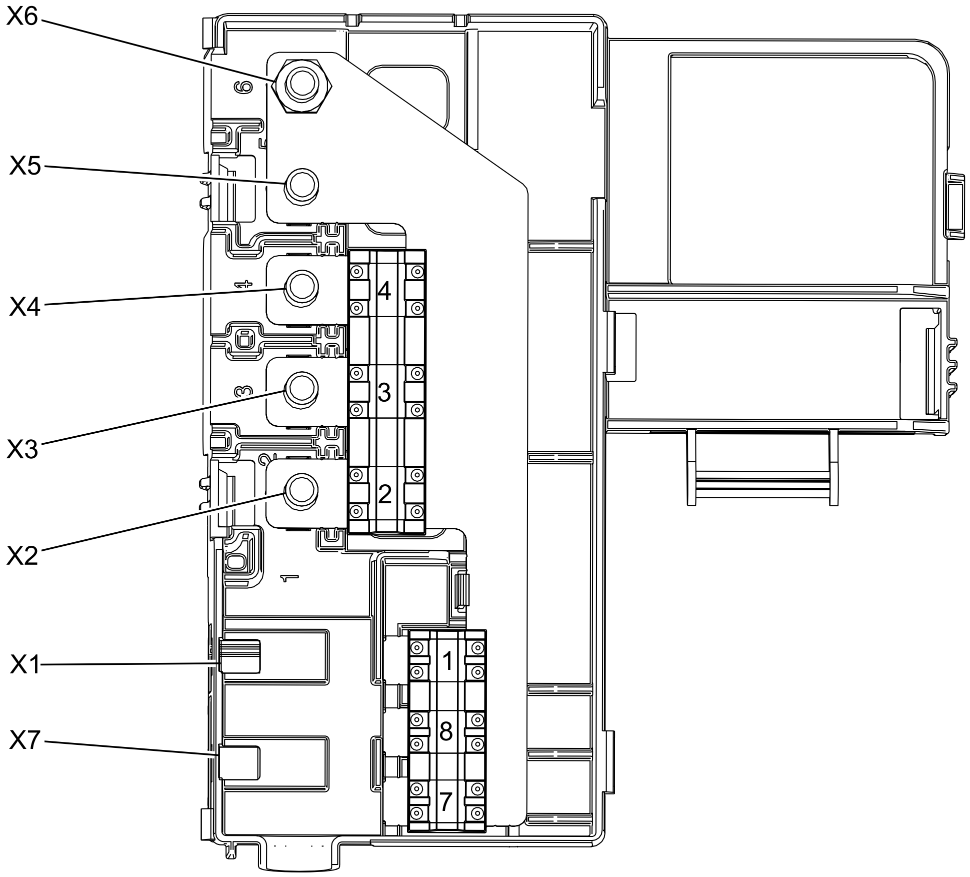
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A1 | — | — | — | Not Occupied | — | — |
| A2 | 0.75 | YE/D-BU | 18 | Left Rear Stop/Turn Lamp Control | IV | — |
| A3 | 0.75 | BN/L-GN | 19 | Right Rear Stop/Turn Lamp Control | VI | — |
| B1 | 5 | RD/YE | 442 | Battery Positive Voltage | I | — |
| B2 | — | — | — | Not Occupied | — | — |
| C1 | 0.75 | L-GN/WH | 24 | Backup Lamp Control | VI | — |
|  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| C2 | 2.5 | RD/YE | 1142 | Battery Positive Voltage | V | — |
| C3 | — | — | — | Not Occupied | — | — |
| D1 | 0.5 | VT/L-GN | 1739 | Run/Crank Ignition 1 Voltage | VI | — |
| D2 - E2 | — | — | — | Not Occupied | — | — |
| F1 | 0.5 | L-GN | 24 | Backup Lamp Control | VI | — |
| F2 - F3 | — | — | — | Not Occupied | — | — |
| G1 | 0.5 | YE/BK | 5356 | Left Tail Lamp Outage Detection Signal | VI | — |
| G2 | 2.5 | RD/VT | 1940 | Battery Positive Voltage | V | — |
| G3 | 3 | RD/L-GN | 2440 | Battery Positive Voltage | III | — |
| G4 | 0.75 | RD/WH | 2040 | Battery Positive Voltage | IV | — |
| G5 - G6 | — | — | — | Not Occupied | — | — |
| H1 | 0.5 | VT/YE | 5357 | Right Tail Lamp Outage Detection Signal | VI | — |
| H2 | — | — | — | Not Occupied | — | — |
| H3 | 0.5 | RD/L-GN | 1840 | Battery Positive Voltage | IV | — |
| H4 | — | — | — | Not Occupied | — | — |
| H5 | 2.5 | VT/L-GN | 355 | Fuel Filter Heater Voltage | V | — |
| H6 - J1 | — | — | — | Not Occupied | — | — |
| J2 | 2.5 | RD/L-GN | 242 | Battery Positive Voltage | V | — |
| J3 | 1.5 | GY/BN | 2109 | Trailer Park Lamp Control | V | — |
| J4 | 2.5 | RD/VT | 1640 | Battery Positive Voltage | V | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| J5 | 0.75 | VT/L-GN | 439 | Run/Crank Ignition 1 Voltage | IV | JL1 |
|  | 0.75 | VT/L-GN | 439 | Run/Crank Ignition 1 Voltage | IV | L96/L5P |
|  | 0.5 | VT/L-GN | 439 | Run/Crank Ignition 1 Voltage | IV | LV1/ LV3/L83/ L86/ L8B |
| J6 - K1 | — | — | — | Not Occupied | — | — |
| K2 | 0.75 | VT/GY | 709 | Left Park Lamp Control | IV | — |
| K3 | — | — | — | Not Occupied | — | — |
| K4 | 0.5 | GY/BN | 309 | Right Park Lamp Control | IV | — |
| K5 | 0.75 | YE/GY | 1618 | Left Rear Trailer Stop/Turn Lamp Control | IV | — |
| K6 | 0.75 | L-GN/VT | 1619 | Right Rear Trailer Stop/Turn Lamp Control | VI | — |
| L1 - L4 | — | — | — | Not Occupied | — | — |
| L5 | 0.5 | BN | 6305 | Brake Vacuum Switch Signal | VI | — |
| L6 | — | — | — | Not Occupied | — | — |
| L7 | 2.5 | GY | 120 | Fuel Pump Control | V | — |
| L8 | — | — | — | Not Occupied | — | — |
| M1 | 0.5 | VT/GY | 1054 | Stop Lamp Control | VI | — |
| M2 - M4 | — | — | — | Not Occupied | — | — |
| M5 | 0.5 | GY | 5660 | Fuel Pump Controller Data Out Signal | II | FPPM |
|  | 0.5 | L-GN/GY | 465 | Fuel Pump Primary Relay Control | VI | L5P/L96 |
| M6 | — | — | — | Not Occupied | — | — |
| M7 | 0.5 | VT/D-BU | 5294 | Powertrain Main Relay Fused Supply 5 | IV | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| M8 | 0.75 | WH/L-GN | 1624 | Trailer Backup Lamp Control | VI | — |
| N1 | — | — | — | Not Occupied | — | — |
| N2 | 4 | RD/L-GN | 742 | Battery Positive Voltage | I | — |

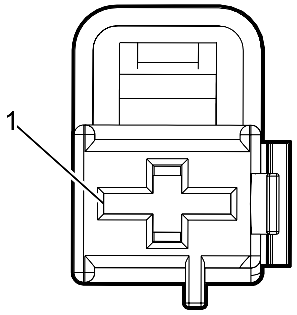
## X50D Fuse Block - Battery Top View

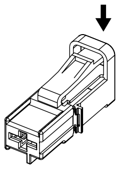


## *X50D Fuse Block – Battery Usage*

| No. | Device Label Name | Device Assigned Name | Rating | Description |
|---|---|---|---|---|
| 1 | — | F1UD | 100A | • |
| 2 | — | F2UD | 175A | •<br>• |
| 3 | — | F3UD | — | • |
| 4 | — | F4UD | 175A | • |
| 5 | — | F7UD | 60A | • |
| 6 | — | F8UD | 60A | • |

## X50D Fuse Block - Battery X1





### Connector Part Information

Harness Type: Body

OEM Connector: 13629098

Service Connector: Service by Harness - See Part Catalog

Description: 1-Way F 8.0 Series (BU)

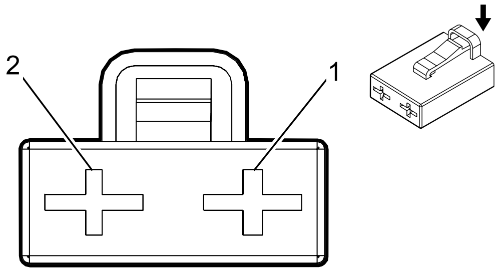
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-21 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X50D Fuse Block - Battery X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 10 | RD/GY | 642 | Battery Positive Voltage | I | — |

## X50D Fuse Block - Battery X7



### Connector Part Information

Harness Type: Body

OEM Connector: 13627842

Service Connector: 19329484

Description: 2-Way F 8.0 Series (BU)

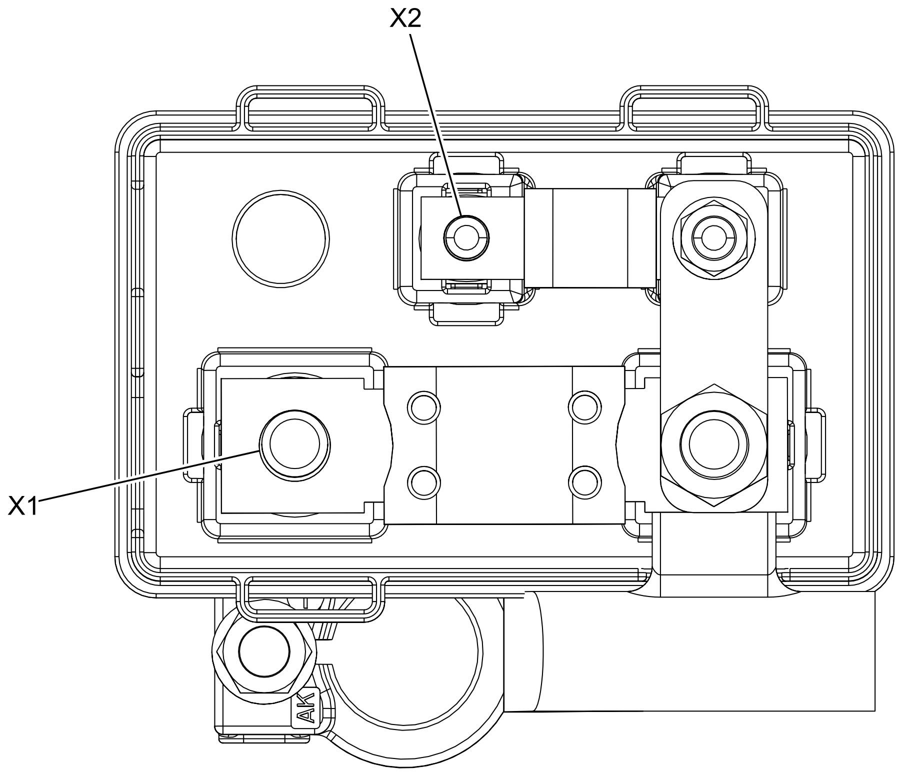
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-21 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X50D Fuse Block - Battery X7*

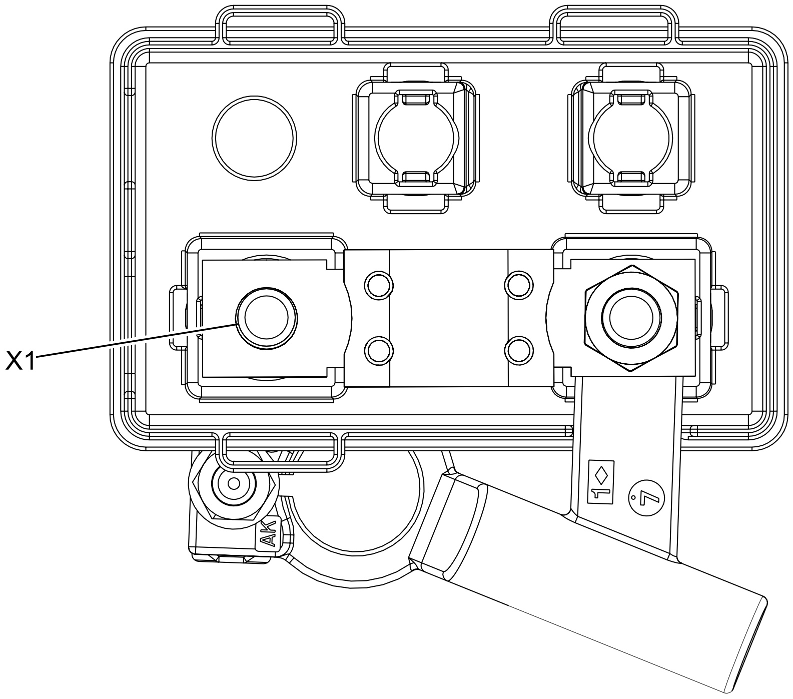
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 6 | RD/GY | 142 | Battery Positive Voltage | I | — |
| 2 | 6 | RD/L-GN | 242 | Battery Positive Voltage | I | — |

## X50E Fuse Block - Auxiliary Battery Top View (K4B or K4D)



### *X50E Fuse Block – Auxiliary Battery Usage (K4B or K4D)*

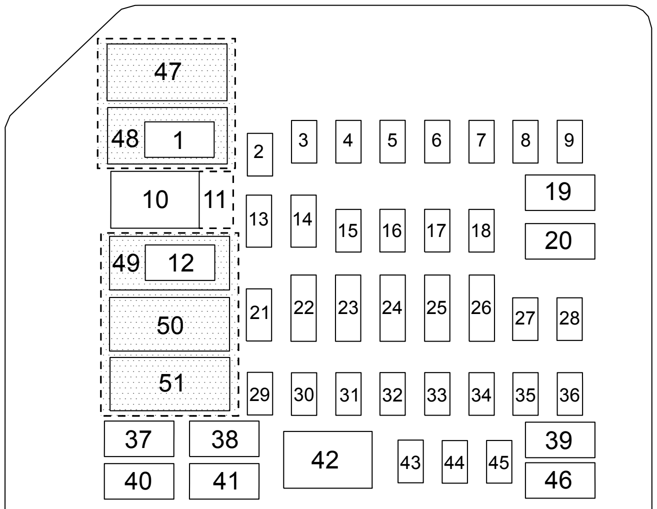
| No. | Device Label Name | Device Assigned Name | Rating | Description |
|---|---|---|---|---|
| **Enter Type of Device Name Here and Insert this Type of Row before Every Different Type of Device within the Block** | | | | |
| 1 | — | F1UE | 125A | • |
| 2 | — | F2UE | 30A | •<br>• |



## X50E Fuse Block – Auxiliary Battery Usage (LML)

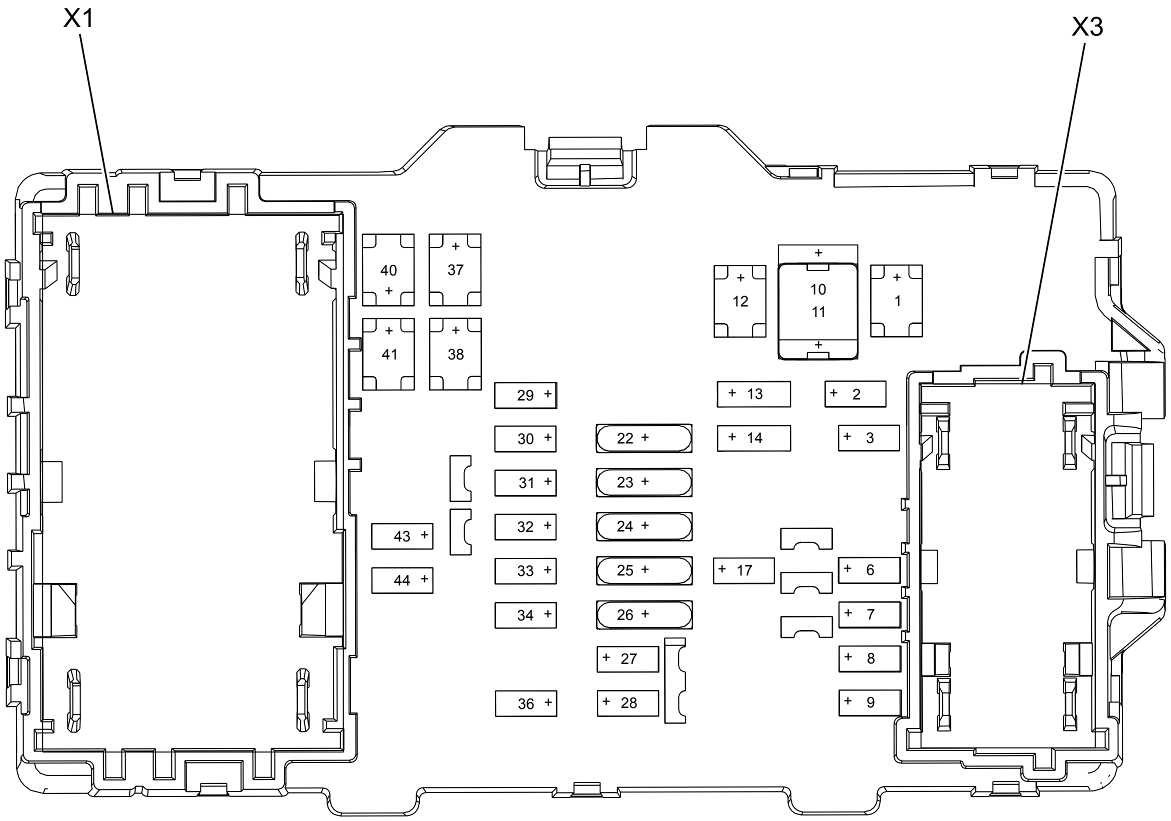
| No. | Device Label Name | Device Assigned Name | Rating | Description |
|---|---|---|---|---|
| **Fuses** | | | | |
| 1 | — | F1UE | 175A | • |

## X51L Fuse Block - Instrument Panel Left Label


47
48
1
2
3
4
5
6
7
8
9
10
11
19
13
14
15
16
17
18
20
49
12
50
21
22
23
24
25
26
27
28
51
29
30
31
32
33
34
35
36
37
38
42
43
44
45
39
40
41
46

1 AP0 2 (15A)
2 SE0 RAP (10A)
3 UGDO / ISRVM (10A)
4 EMPTY
5 EMPTY
6 BCM 3 (20A)
7 BCM 5 (10A)
8 MIR WNDW MDL (5A)
9 SPARE (15A)
10 AP0/RAP (50A)
11 AP0/BATT (50A)
12 AP0 1/LTR (15A)
13 DLIS (2A)
14 SWC BKLT (2A)
15 EMPTY
16 EMPTY
17 BCM 1 (10A)
18 EMPTY
19 EMPTY
20 EMPTY
21 EMPTY
22 HVAC/AUX HVAC IGN (15A/15A)
23 IPC IGN/SDM IGN (10A/10A)
24 SPARE(15A/15A)
25 DLC/DSM (10A/10A)
26 PEPS/HVAC (10A/10A)
27 SPARE (10A)
28 SPARE (10A)
29 PRK ENBL/EAP (15A)
30 SEO ALC (15A)
31 ACCY/RUN CRNK (10A)
32 HTD WHL (7.5A)
33 SPARE (10A)
34 IPC (10A)
35 EMPTY
36 SPARE (15A)
37 SPARE (30A)
38 4WD TREC (30A)
39 EMPTY
40 LT DRS (30A)
41 DRVR PWR SEAT (30A)
42 EMPTY
43 LT HTD CLD SEAT (15A)
44 RT HTD CLD SEAT (30A)
45 SPARE (15A)
46 EMPTY
47 EMPTY
48 EMPTY
49 RAP/ACCY
50 RUN/CRNK
51 EMPTY

## X51L Fuse Block - Instrument Panel Left Top View


X1
X3
40
37
41
38
12
10
11
1
29
30
31
32
33
34
36
43
44
22
23
24
25
26
27
28
13
14
17
2
3
6
7
8
9

### X51L Fuse Block – Instrument Panel Left Label Usage (Fuses)

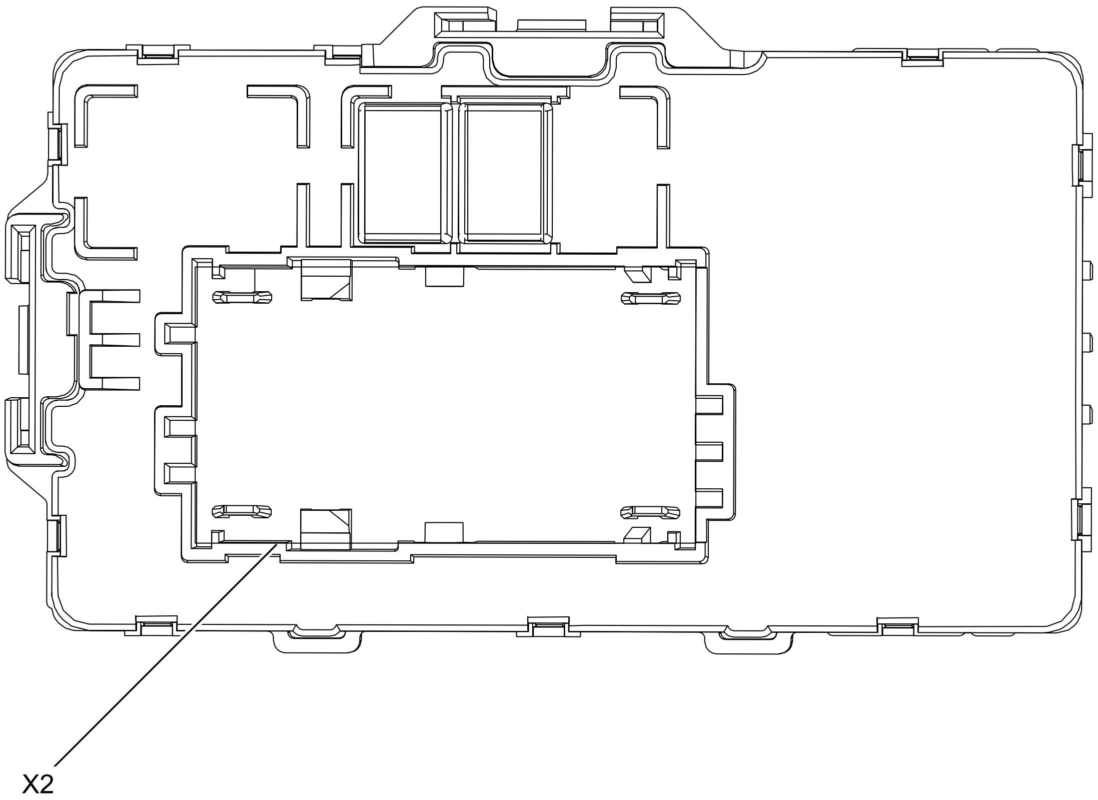
| No. | Device Label Name | Device Assigned Name | Rating | Description |
|---|---|---|---|---|
| 1 | APO 2 | F1DL | 15A | •<br>• |
| 2 | SEO RAP | F2DL | 10A | •<br>•<br>• |
| 3 | UGDO/ISRVM | F3DL | 10A | •<br>• |
| 4 | EMPTY | F4DL | — | • |
| 5 | EMPTY | F5DL | — | • |
| 6 | BCM 3 | F6DL | 20A | • |

|  |  |  |  |  |
|---|---|---|---|---|
| 7 | BCM 5 | F7DL | 10A | • |
| 8 | MIR WNDW MDL | F8DL | 5A | •<br>• |
| 9 | SPARE | F9DL | 15A | • |
| 10 | APO/RAP | F10DL | 50A | •<br>• |
| 11 | APO/BATT | F11DL | 50A | •<br>• |
| 12 | APO 1/LTR | F12DL | 15A | • |
| 13 | DLIS | F13DL | 2A | • |
| 14 | SWC BKLT | F14DL | 2A | • |
| 15 | EMPTY | F15DL | — | • |
| 16 | EMPTY | F16DL | — | • |
| 17 | BCM 1 | F17DL | 10A | •<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>•<br>• |
| 18 | EMPTY | F18DL | — | • |
| 19 | EMPTY | F19DL | — | • |
| 20 | EMPTY | F20DL | — | • |
| 21 | EMPTY | F21DL | — | • |
| 22 | HVAC/AUX HVAC IGN | F22DL | 15A | •<br>• |
| 23 | IPC IGN/SDM IGN | F23DL | 10A | •<br>•<br>• |

|  |  |  |  |  |
|---|---|---|---|---|
|  |  |  |  | • |
| 24 | SPARE | F24DL | 15A | • |
| 25 | DLC/DSM | F25DL | 10A | •<br>• |
| 26 | PEPS/HVAC | F26DL | 10A | • |
| 27 | SPARE | F27DL | 10A | • |
| 28 | SPARE | F28DL | 10A | • |
| 29 | PRK ENBL/EAP | F29DL | 15A | •<br>•<br>• |
| 30 | SEO ALC | F30DL | 15A | • |
| 31 | ACCY/RUN CRNK | F31DL | 10A | •<br>•<br>•<br>• |
| 32 | HTD WHL | F32DL | 7.5A | • |
| 33 | SPARE | F33DL | 10A | • |
| 34 | IPC | F34DL | 10A | •<br>•<br>•<br>• |
| 35 | EMPTY | F35DL | — | • |
| 36 | SPARE | F36DL | 15A | • |
| 37 | SPARE | F37DL | 30A | • |
| 38 | 4WD TREC | F38DL | 30A | • |
| 39 | EMPTY | F39DL | — | • |
| 40 | LT DRS | F40DL | 30A | •<br>• |
| 41 | DRVR PWR SEAT | F41DL | 30A | •<br>• |
| 42 | EMPTY | F42DL | — | • |

| | | | | |
|---|---|---|---|---|
| 43 | LT HTD CLD SEAT | F43DL | 15A | •<br>•<br>• |
| 44 | RH FRT HTD CLD SEAT | F44DL | 15A | •<br>•<br>• |
| 45 | SPARE | F45DL | 15A | • |
| 46 | EMPTY | F46DL | — | • |

## X51L Fuse Block - Instrument Panel Left Bottom View

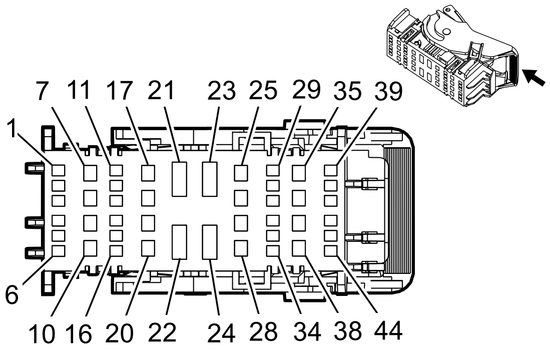


### *X51L Fuse Block – Instrument Panel Left Label Usage (Relays)*

| No. | Device Label Name | Device Assigned Name | Rating | Description |
|---|---|---|---|---|
| 47 | EMPTY | — | — | • |
| 48 | EMPTY | — | — | • |
| 49 | RAP/ACCY | KR76A Retained Accessory Power Relay 1 | — | •<br>•<br>•<br>• |
| 50 | RUN/CRNK | KR73 Ignition Main Relay | — | •<br>•<br>•<br>•<br>• |

| | | | | |
|---|---|---|---|---|
| | | | | • |
| 51 | EMPTY | — | — | • |
| | | | | |
| — | — | KR1F Adjustable Pedal Relay − Forward | — | • M5 Adjustable Pedal Motor |
| — | — | KR1R Adjustable Pedal Relay − Rearward | — | • M5 Adjustable Pedal Motor |
| — | — | KR87 Transmission Park Relay | — | • KR1F Adjustable Pedal Relay − Forward<br>• KR1R Adjustable Pedal Relay − Rearward |

## X51L Fuse Block - Instrument Panel Left X1



### Connector Part Information

Harness Type: Body

OEM Connector: 13967687

Service Connector: 19329455

Description: 44-Way F 1.5, 2.8, 800 Metri-Pack Series (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575718 | J-35616-44 (YE) | J-38125-558 | 12110127 | Delphi 19 | F | G |
| II | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| III | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| IV | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

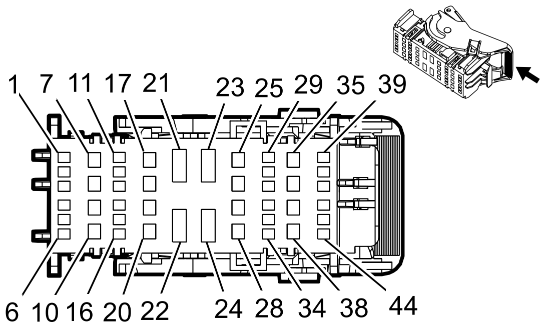
### *X51L Fuse Block - Instrument Panel Left X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 4 | — | — | — | Not Occupied | — | — |
| 5 | 0.5 | RD/BN | 1140 | Battery Positive Voltage | IV | — |
| 6 - 14 | — | — | — | Not Occupied | — | — |
| 15 | 0.35 | L-GN/GY | 5286 | Adjustable Pedal Switch Forward Signal | IV | — |
| 16 | 0.5 | RD/VT | 1940 | Battery Positive Voltage | IV | — |
| 17 | 0.75 | RD/L-GN | 6140 | Battery Positive Voltage | II | — |
| 18 | 0.75<br>0.75 | RD/L-GN<br>RD/L-GN | 5140<br>5140 | Battery Positive Voltage<br>Battery Positive Voltage | III<br>II | —<br>— |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
|  | 0.75 | RD/L-GN | 5140 | Battery Positive Voltage | II | — |
| 19 | — | — | — | Not Occupied | — | — |
| 20 | 0.75 | L-GN/VT | 5130 | Adjustable Pedal Actuator Forward Control | II | — |
| 21 | 5 | RD/VT | 842 | Battery Positive Voltage | I | — |
| 22 | — | — | — | Not Occupied | — | — |
| 23 | 5 | RD/D-BU | 42 | Battery Positive Voltage | I | — |
| 24 - 26 | — | — | — | Not Occupied | — | — |
| 27 | 2.5 | RD/YE | 5040 | Battery Positive Voltage | III | — |
| 28 | 0.75 | YE | 5129 | Adjustable Pedal Actuator Rearward Control | II | — |
| 29 | 0.5 | VT/BK | 739 | Run/Crank Ignition 1 Voltage | IV | — |
| 30 | 0.5 | VT/WH | 1939 | Run/Crank Ignition 1 Voltage | IV | — |
| 31 | — | — | — | Not Occupied | — | — |
| 32 | 0.35 | VT/L-GN | 1739 | Run/Crank Ignition 1 Voltage | IV | — |
| 33 | 0.35 | WH/GY | 5285 | Adjustable Pedal Switch Rearward Signal | IV | — |
| 34 - 35 | — | — | — | Not Occupied | — | — |
| 36 | 2.5 | RD/D-BU | 1842 | Battery Positive Voltage | III | — |
| 37 | 2.5 | RD/D-BU | 1842 | Battery Positive Voltage | III | — |
| 38 - 41 | — | — | — | Not Occupied | — | — |
| 42 | 0.35 | L-GN/VT | 5199 | Run/Crank Relay Coil Control | IV | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 43 | 0.35 | GY/VT | 755 | RAP Relay Coil Control | IV | — |
| 44 | 0.35 | VT/YE | 43 | Accessory Ignition Voltage | IV | — |

## X51L Fuse Block - Instrument Panel Left X2



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13967688

Service Connector: 19329456

Description: 44-Way F 1.5, 2.8, 800 Metri-Pack Series (GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| II | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| III | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

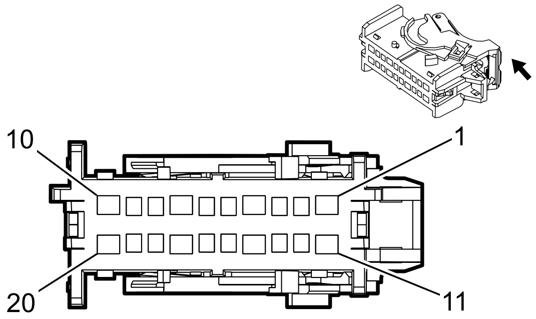
### *X51L Fuse Block - Instrument Panel Left X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | YE | 6817 | LED Backlight Dimming Control | III | — |
| 4 | 0.35 | BN | 6136 | Control | III | — |
| 5 | 0.35 | RD/D-BU | 540 | Battery Positive Voltage | III | — |
| 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.5 | RD/BN | 2940 | Battery Positive Voltage | I | — |
| 8 | 1 | RD/GY | 2140 | Battery Positive Voltage | I | — |
| 9 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | 1.5 | RD/BN | 4240 | Battery Positive Voltage | II | — |
| 11 - 14 | — | — | — | Not Occupied | — | — |
| 15 | 0.5 | VT/GY | 539 | Run/Crank Ignition 1 Voltage | III | — |
| 16 - 17 | — | — | — | Not Occupied | — | — |
| 18 | 0.5 | RD/WH | 2740 | Battery Positive Voltage | I | — |
| 19 | — | — | — | Not Occupied | — | — |
| 20 | 1.5 | RD/WH | 1040 | Battery Positive Voltage | II | — |
| 21 - 24 | — | — | — | Not Occupied | — | — |
| 25 | 0.35 | RD/VT | 3340 | Battery Positive Voltage | I | — |
| | 0.5 | RD/VT | 3340 | Battery Positive Voltage | | — |
| 26 | 0.35 | RD/WH | 640 | Battery Positive Voltage | I | — |
| 27 | — | — | — | Not Occupied | — | — |
| 28 | 0.5 | VT/BK | 1639 | Run/Crank Ignition 1 Voltage | I | — |
| 29 - 34 | — | — | — | Not Occupied | — | — |
| 35 | 0.5 | RD/GY | 2840 | Battery Positive Voltage | I | — |
| 36 | — | — | — | Not Occupied | — | — |
| 37 | 0.5 | VT/WH | 1139 | Run/Crank Ignition 1 Voltage | I | — |
| 38 | 0.35 | VT/L-GN | 1739 | Run/Crank Ignition 1 Voltage | I | — |
| 39 - 42 | — | — | — | Not Occupied | — | — |
| 43 | 0.35 | YE | 6812 | Out of Park Signal | III | — |
| | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 44 | 0.75 | BK | 1850 | Ground | III | — |

## X51L Fuse Block - Instrument Panel Left X3



### Connector Part Information

Harness Type: Headliner

OEM Connector: 15547106

Service Connector: 13597270

Description: 20-Way F 1.5, 2.8 OCS Series (BK)

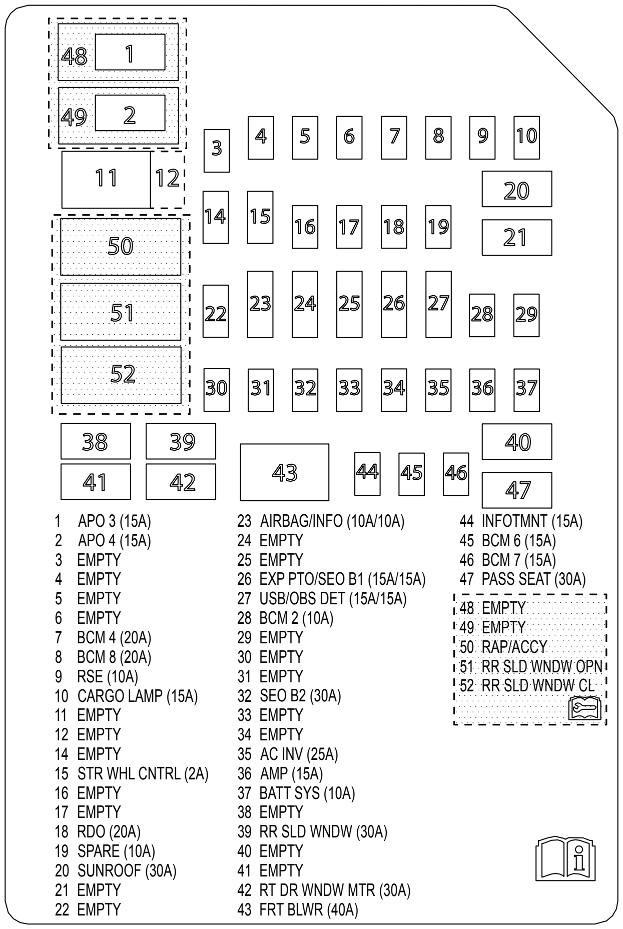
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| II | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

### *X51L Fuse Block - Instrument Panel Left X3*

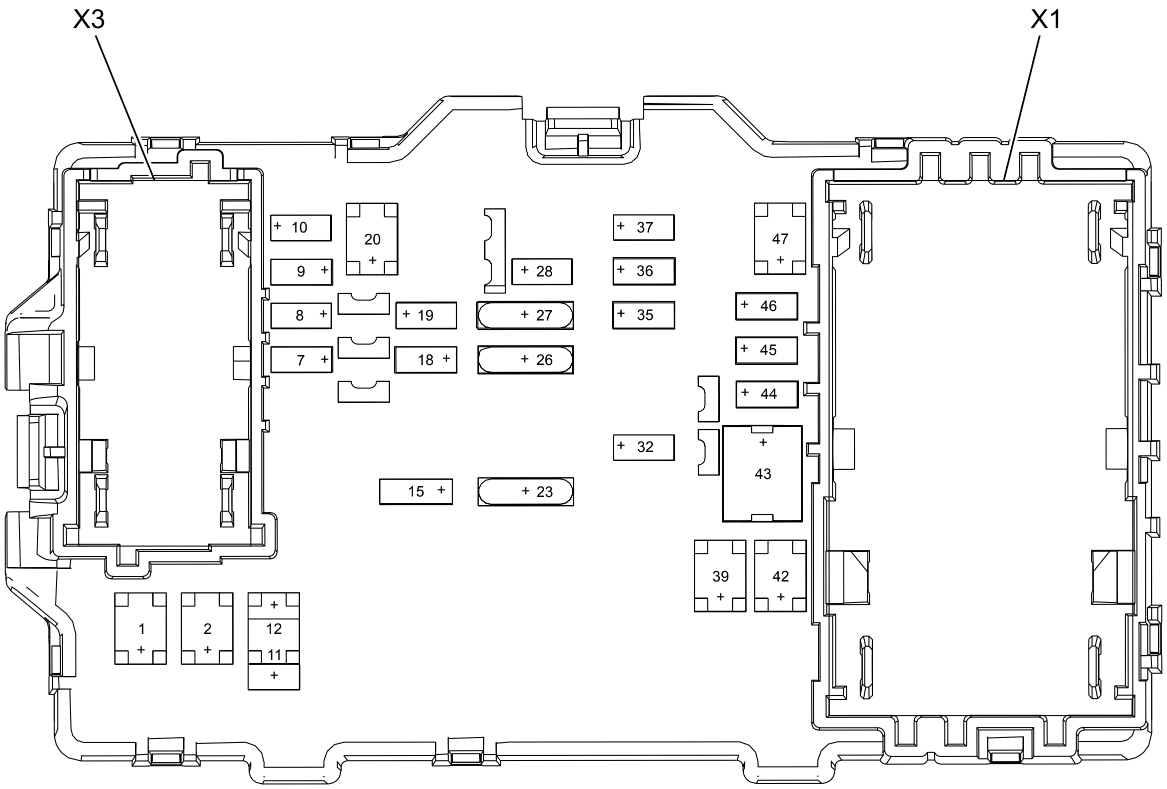
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 10 | — | — | — | Not Occupied | — | — |
| 11 | 0.35 | VT/YE | 43 | Accessory Ignition Voltage | I | — |
| 12 | 0.5 | RD/YE | 240 | Battery Positive Voltage | II | — |
| 13 | 0.35 | VT/L-GN | 1739 | Run/Crank Ignition 1 Voltage | II | — |
| 14 | 0.35 | VT/BK | 1139 | Run/Crank Ignition 1 Voltage | I | — |
| 15 - 20 | — | — | — | Not Occupied | — | — |

## X51R Fuse Block - Instrument Panel Right Label



1 APO 3 (15A)
2 APO 4 (15A)
3 EMPTY
4 EMPTY
5 EMPTY
6 EMPTY
7 BCM 4 (20A)
8 BCM 8 (20A)
9 RSE (10A)
10 CARGO LAMP (15A)
11 EMPTY
12 EMPTY
14 EMPTY
15 STR WHL CNTRL (2A)
16 EMPTY
17 EMPTY
18 RDO (20A)
19 SPARE (10A)
20 SUNROOF (30A)
21 EMPTY
22 EMPTY
23 AIRBAG/INFO (10A/10A)
24 EMPTY
25 EMPTY
26 EXP PTO/SEO B1 (15A/15A)
27 USB/OBS DET (15A/15A)
28 BCM 2 (10A)
29 EMPTY
30 EMPTY
31 EMPTY
32 SEO B2 (30A)
33 EMPTY
34 EMPTY
35 AC INV (25A)
36 AMP (15A)
37 BATT SYS (10A)
38 EMPTY
39 RR SLD WNDW (30A)
40 EMPTY
41 EMPTY
42 RT DR WNDW MTR (30A)
43 FRT BLWR (40A)
44 INFOTMNT (15A)
45 BCM 6 (15A)
46 BCM 7 (15A)
47 PASS SEAT (30A)
48 EMPTY
49 EMPTY
50 RAP/ACCY
51 RR SLD WNDW OPN
52 RR SLD WNDW CL

## X51R Fuse Block - Instrument Panel Right Top View


X3
X1
10
20
37
47
9
28
36
8
19
27
35
46
7
18
26
45
44
32
43
15
23
39
42
1
2
12
11

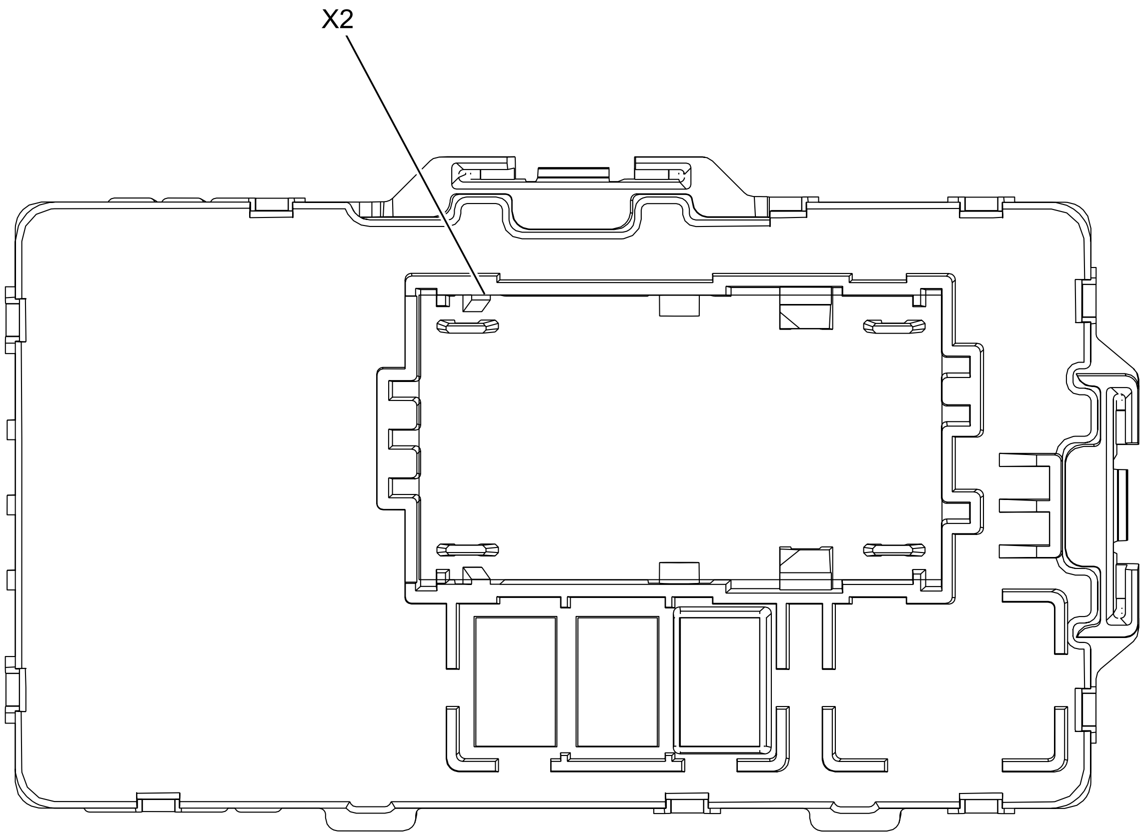
### *X51R Fuse Block – Instrument Panel Right Label Usage (Fuses)*

| No. | Device Label Name | Device Assigned Name | Rating | Description |
|---|---|---|---|---|
| 1 | APO 3 | F1DR | 15A | •<br>• |
| 2 | APO 4 | F2DR | 15A | •<br>• |
| 3 | EMPTY | — | — | • |
| 4 | EMPTY | — | — | • |
| 5 | EMPTY | — | — | • |
| 6 | EMPTY | — | — | • |
| 7 | BCM 4 | F7DR | 20A | • |
|  |  |  |  |  |

| | | | | |
|---|---|---|---|---|
| 8 | BCM 8 | F8DR | 20A | • |
| 9 | RSE | F9DR | 10A | • |
| 10 | CARGO LAMP | F10DR | 15A | •<br>•<br>•<br>•<br>• |
| 11 | EMPTY | F11DR | — | • |
| 12 | EMPTY | F12DR | — | • |
| 14 | EMPTY | F14DR | — | • |
| 15 | STR WHL CNTRL | F15DR | 2A | •<br>• |
| 16 | EMPTY | F16DR | — | • |
| 17 | EMPTY | F17DR | — | • |
| 18 | RDO | F18DR | 20A | •<br>•<br>•<br>•<br>• |
| 19 | SPARE | F19DR | 10A | • |
| 20 | SUNROOF | F20DR | 30A | •<br>• |
| 21 | EMPTY | F21DR | — | • |
| 22 | EMPTY | F22DR | — | • |
| 23 | AIRBAG/INFO | F23DR | 10A | •<br>•<br>• |
| 24 | EMPTY | F24DR | — | • |
| 25 | EMPTY | F25DR | — | • |
| 26 | EXP PTO/SEO B1 | F26DR | 15A | •<br>• |
| | | | | |

| | | | | |
|---|---|---|---|---|
| 27 | USB/OBS DET | F27DR | 15A | •<br>•<br>• |
| 28 | BCM 2 | F28DR | 10A | • |
| 29 | EMPTY | F29DR | — | • |
| 30 | EMPTY | F30DR | — | • |
| 31 | EMPTY | F31DR | — | • |
| 32 | SEO B2 | F32DR | 30A | • |
| 33 | EMPTY | F33DR | — | • |
| 34 | EMPTY | F34DR | — | • |
| 35 | AC INV | F35DR | 25A | • |
| 36 | AMP | F36DR | 30A | • |
| 37 | SPARE | F37DR | 10A | • |
| 38 | EMPTY | F38DR | — | • |
| 39 | RR SLD WNDW | F39DR | 30A | •<br>• |
| 40 | EMPTY | F40DR | — | • |
| 41 | EMPTY | F41DR | — | • |
| 42 | RT DR WNDW MTR | F42DR | 30A | •<br>• |
| 43 | FRT BLWR | F43DR | 40A | • |
| 44 | SEO | F44DR | 15A | • |
| 45 | BCM 6 | F45DR | 15A | • |
| 46 | BCM 7 | F46DR | 15A | • |
| 47 | PASS SEAT | F47DR | 30A | • |

## X51R Fuse Block - Instrument Panel Right Bottom View

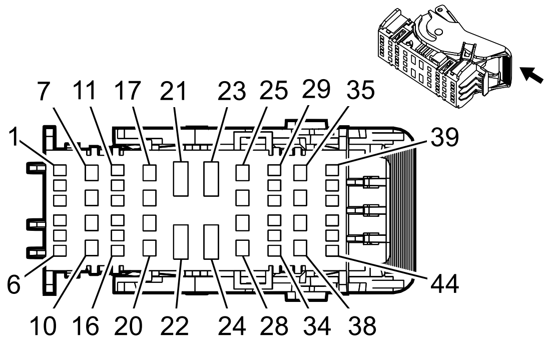


### *X51R Fuse Block – Instrument Panel Right Label Usage (Relays)*

| No. | Device Label Name | Device Assigned Name | Rating | Description |
|---|---|---|---|---|
| 48 | EMPTY | — | — | • |
| 49 | EMPTY | — | — | • |
| 50 | RAP/ACCY | KR76B Retained Accessory Power Relay 2 | — | •<br>• |
| 51 | RR SLD WNDW OPN | KR8B Sliding Rear Window Open Relay | — | • |
| 52 | RR SLD WNDW CL | KR8A Sliding Rear Window Close Relay | — | • |
| **Note:** Relays listed below are non-serviceable Printed Circuit Board (PCB) relays and are internal to the block. | | | | |
| — | — | KR112 Cargo Lamp Relay | — | • F9DR |
| | | | | |

| | | | | |
|---|---|---|---|---|
| — | — | KR113 Child Security Lock Disable Relay | — | • A23LR Door Latch Assembly-Left Rear<br>• A23RR Door Latch Assembly-Right Rear |
| — | — | KR114 Door Dead Lock Relay | — | • A23D Door Latch Assembly-Driver<br>• A23 LR Door Latch Assembly-Left Rear<br>• A23P Door Latch Assembly-Passenger<br>• A23RR Door Latch Assembly-Right Rear |

## X51R Fuse Block - Instrument Panel Right X1



### Connector Part Information

Harness Type: Body

OEM Connector: 13967689

Service Connector: 19329457

Description: 44-Way F 1.5, 2.8, 800 Metri-Pack Series (NA)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575718 | J-35616-44 (YE) | J-38125-558 | 12110127 | Delphi 19 | F | G |
| II | 13575718 | J-35616-44 (YE) | J-38125-558 | Not Available | Not Available | Not Available | Not Available |
| III | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| IV | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| V | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

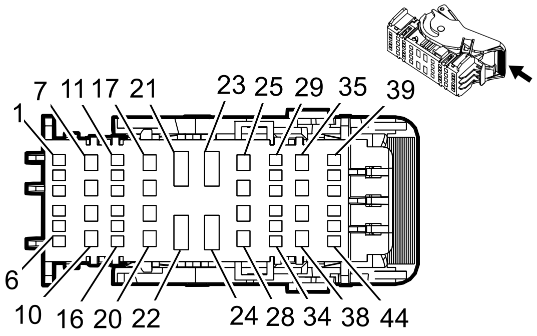
### *X51R Fuse Block - Instrument Panel Right X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 1.5 | GY | 295 | Door Lock Actuator Lock Control | V | EXTENDED CAB/CREW CAB |
| | 0.75 | GY | 295 | Door Lock Actuator Lock Control | V | REGULAR CAB |
| 2 | 1.5 | WH/D-BU | 3266 | Child Security Lock Motor Lock Control | V | — |
| 3 | 0.35 | VT/YE | 3267 | Child Security Lock Relay Control | V | — |
| 4 | 1.5 | GY/L-GN | 3271 | Door Lock Control 2 | V | — |
| 5 | — | — | — | Not Occupied | — | — |
| 6 | 0.35 | GY/VT | 755 | RAP Relay Coil Control | V | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 6 | 0.35 | GY/VT | 755 | RAP Relay Coil Control | V | — |
| 7 - 8 | — | — | — | Not Occupied | — | — |
| 9 | 2.5 | GY/L-GN | 5441 | Endgate Window Regulator Down Signal | IV | — |
| 10 | 2.5 | YE/D-BU | 5442 | Endgate Window Regulator Up Signal | IV | — |
| 11 | — | — | — | Not Occupied | — | — |
| 12 | 0.75 | RD/D-BU | 4540 | Battery Positive Voltage | V | — |
| 13 | 0.75 | RD/VT | 2640 | Battery Positive Voltage | V | — |
| 14 | — | — | — | Not Occupied | — | — |
| 15 | 0.5 | VT/GY | 709 | Left Park Lamp Control | V | — |
| 16 | 0.35 | RD/L-GN | 4440 | Battery Positive Voltage | V | AL0 |
| | 0.5 | RD/L-GN | 4440 | Battery Positive Voltage | V | -AL0 |
| 17 | — | — | — | Not Occupied | — | — |
| 18 | 1.5 | VT/YE | 143 | Accessory Ignition Voltage | IV | — |
| 19 | 2.5 | RD/WH | 1340 | Battery Positive Voltage | IV | — |
| 20 | 2.5 | RD/WH | 1340 | Battery Positive Voltage | IV | — |
| 21 | 6 | RD/L-GN | 242 | Battery Positive Voltage | II | — |
| 22 | 4 | RD/VT | 542 | Battery Positive Voltage | I | — |
| 23 | — | — | — | Not Occupied | — | — |
| 24 | 6 | RD/GY | 142 | Battery Positive Voltage | II | — |
| | | | | | | |

| | | | | | | |
|---|---|---|---|---|---|---|
| 25 - 26 | — | — | — | Not Occupied | — | — |
| 27 | 0.75 | RD/VT | 340 | Battery Positive Voltage | III | — |
| 28 | — | — | — | Not Occupied | — | — |
| 29 | 1.5 | D-BU/WH | 195 | Door Lock Control | V | — |
| 30 - 32 | — | — | — | Not Occupied | — | — |
| 33 | 0.75 | RD/WH | 3440 | Battery Positive Voltage | V | — |
| 34 | 0.75 | RD/L-GN | 5140 | Battery Positive Voltage | V | — |
| 35 - 36 | — | — | — | Not Occupied | — | — |
| 37 | 2.5 | RD/YE | 3740 | Battery Positive Voltage | III | — |
| 38 | 2.5 | RD/BN | 1440 | Battery Positive Voltage | IV | — |
| 39 | — | — | — | Not Occupied | — | — |
| 40 | 0.75 | GY | 5911 | Door Lock Actuator Lock Control 2 | V | — |
| 41 - 42 | — | — | — | Not Occupied | — | — |
| 43 | 0.75 | RD/L-GN | 3140 | Battery Positive Voltage | V | — |
| 44 | 0.5 | RD/BN | 2940 | Battery Positive Voltage | V | — |

## X51R Fuse Block - Instrument Panel Right X2



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13967690

Service Connector: 19329458

Description: 44-Way F 1.5, 2.8, 800 Metri-Pack Series (GN)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575718 | J-35616-44 (YE) | J-38125-558 | 12110127 | Delphi 19 | F | G |
| II | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| III | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| IV | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

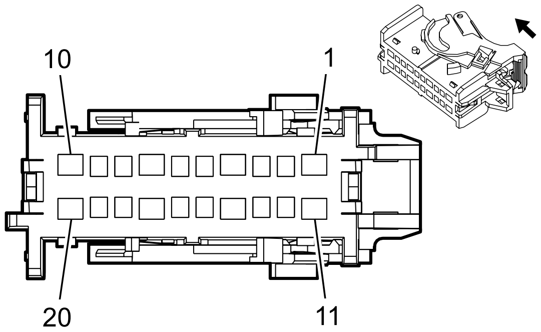
### *X51R Fuse Block - Instrument Panel Right X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | RD/L-GN | 1540 | Battery Positive Voltage | IV | — |
| 2 - 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.5 | BN/WH | 1429 | Standing Lamp Relay Control | IV | — |
| 5 | 0.5 | BK | 1050 | Ground | IV | — |
| 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.75 | RD/VT | 4040 | Battery Positive Voltage | II | — |
| 8 | 0.75 | RD/D-BU | 2540 | Battery Positive Voltage | II | — |
| 9 | — | — | — | Not Occupied | — | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 1.5 | VT/YE | 243 | Accessory Ignition Voltage | III | — |
| 11 | 0.75 | WH/VT | 1430 | Exterior Courtesy Lamp Control | IV | — |
| 12 - 15 | — | — | — | Not Occupied | — | — |
| 16 | 0.35 | RD/YE | 3040 | Battery Positive Voltage | IV | — |
| 17 | 1 | RD/VT | 340 | Battery Positive Voltage | II | (IO4/IO5/IO6)/(IO3&TG5) |
|  | 0.75 | RD/VT | 340 | Battery Positive Voltage | II | O3-TG5 |
| 18 - 21 | — | — | — | Not Occupied | — | — |
| 22 | 2.5 | BK | 1050 | Ground | I | — |
| 23 - 28 | — | — | — | Not Occupied | — | — |
| 29 | 0.5 | RD/BN | 2240 | Battery Positive Voltage | IV | — |
| 30 - 31 | — | — | — | Not Occupied | — | — |
| 32 | 0.35 | YE/VT | 6191 | Power Sliding Window Switch Open Signal | IV | — |
| 33 | 0.35 | WH | 6192 | Power Sliding Window Switch Close Signal | IV | — |
| 34 | 0.35 | RD/D-BU | 3240 | Battery Positive Voltage | IV | — |
| 35 | 2.5 | RD/GY | 4140 | Battery Positive Voltage | III | — |
| 36 - 37 | — | — | — | Not Occupied | — | — |
| 38 | 1.5 | RD/YE | 2340 | Battery Positive Voltage | III | — |
| 39 - 41 | — | — | — | Not Occupied | — | — |
| 42 | 0.75 | RD/VT | 340 | Battery Positive Voltage | IV | — |
|  |  |  |  |  |  |  |

| | | | | | | |
|---|---|---|---|---|---|---|
| 43 - 44 | — | — | — | Not Occupied | — | — |

## X51R Fuse Block - Instrument Panel Right X3



### Connector Part Information

Harness Type: RH A Pillar

OEM Connector: 15547107

Service Connector: Service by Harness - See Part Catalog

Description: 20-Way F 1.5, 2.8 OCS Series (GY)

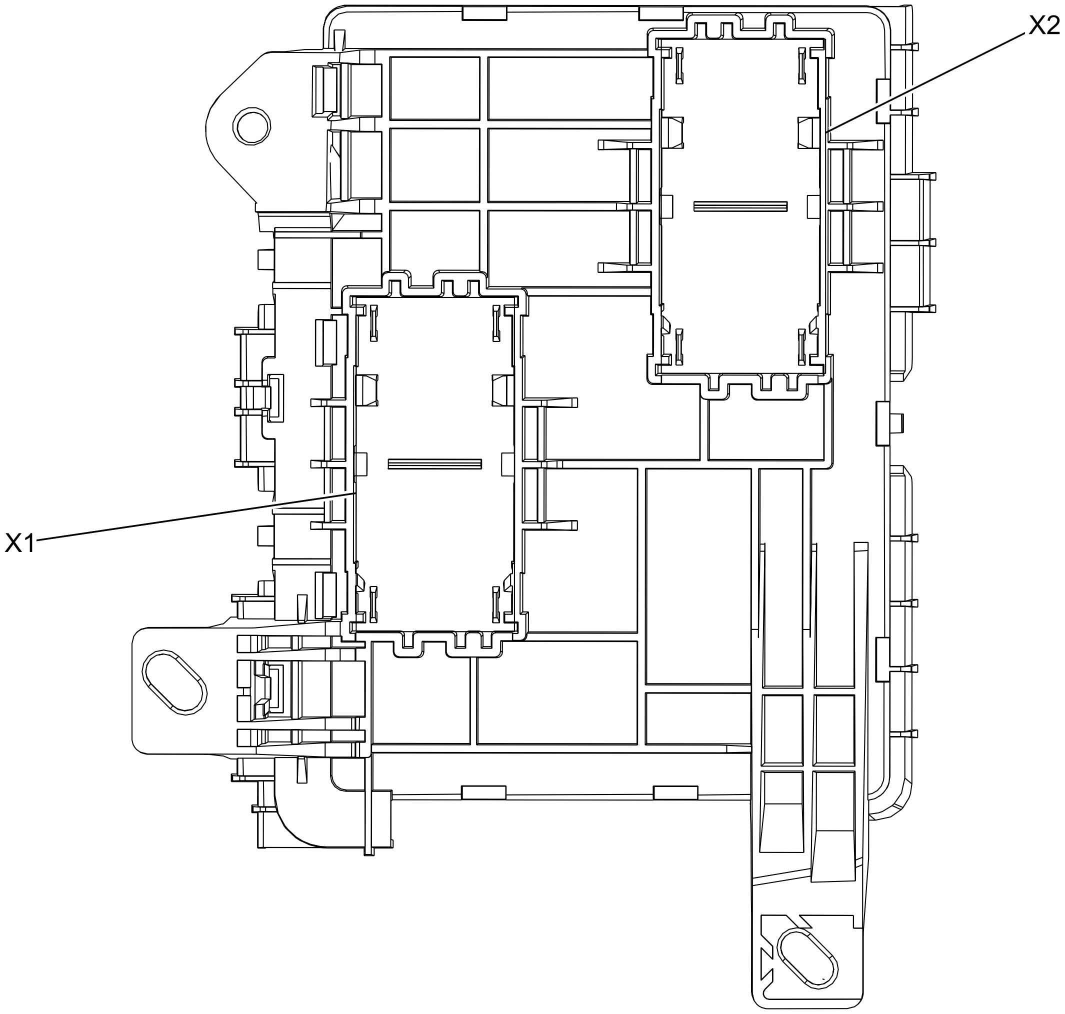
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

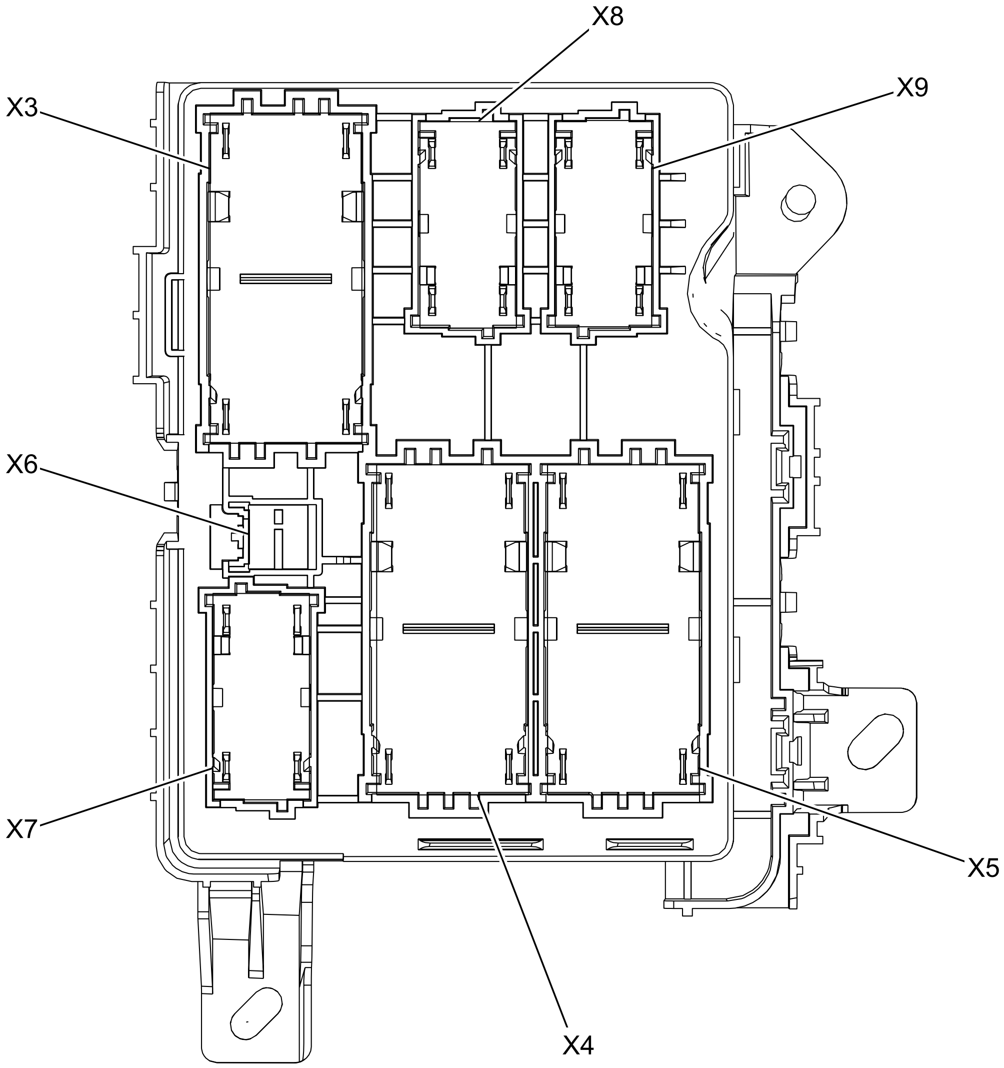
### *X51R Fuse Block - Instrument Panel Right X3*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | RD/L-GN | 3140 | Battery Positive Voltage | II | — |
| 2 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.5 | VT/GY | 709 | Left Park Lamp Control | I | — |
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 2.5<br>0.5 | BK<br>BK | 1050<br>1050 | Ground<br>Ground | II<br>II | CF5/TRW<br>U01-UE1-IO6 |
| 11 - 20 | — | — | — | Not Occupied | — | — |

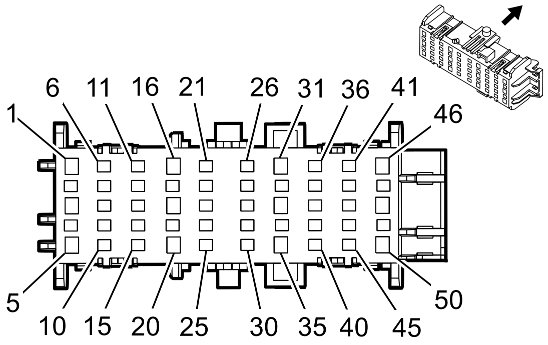
## X61A Junction Block - Instrument Panel Top View



## X61A Junction Block - Instrument Panel Bottom View


X8
X9
X3
X6
X7
X5
X4

# X61A Junction Block - Instrument Panel X1



## Connector Part Information

Harness Type: Body

OEM Connector: 33114819

Service Connector: 19301798

Description: 50-Way F 1.5, 2.8 OCS Series (BK)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| II | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| III | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

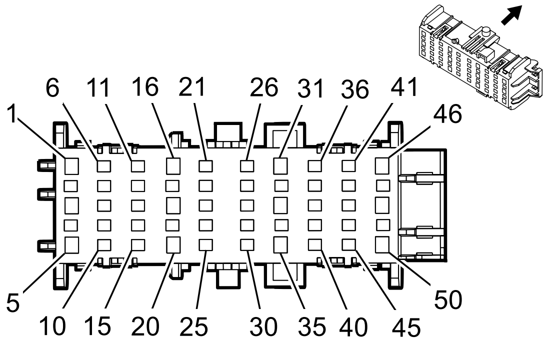
## *X61A Junction Block - Instrument Panel X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | — | Not Occupied | — | — |
| 2 | 0.5 | GY/BK | 1570 | Front Axle Actuator Control | III | — |
| 3 - 10 | — | — | — | Not Occupied | — | — |
| 11 | 0.35 | GY/L-GN | 2555 | Rear Park Assist Disable Signal | III | — |
| 12 - 15 | — | — | — | Not Occupied | — | — |
| 16 | 2.5 | D-BU | 965 | — | II | — |
| 17 | 0.75 | WH/VT | 1430 | Exterior Courtesy Lamp Control | III | — |
| 18 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 19 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | III | — |
| 20 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | I | — |
| 21 | 0.5 | RD/WH | 961 | — | III | — |
| 22 | 0.35 | VT | 185 | Low Washer Fluid Indicator Control | III | — |
| 23 | 0.35 | BN/YE | 780 | Driver Door Lock Switch Lock Signal | III | — |
| 24 | 0.5 | BN | 7634 | Integrated Trailer Brake Controller Redundant Manual Apply Signal | III | — |
| 25 | 0.35 | GY | 5697 | Child Lockout Indicator Control | III | — |
| 26 | 0.5 | D-BU/RD | 7632 | Integrated Trailer Brake Controller Switch 5V Reference | III | — |
| 27 | 0.5 | BK/BN | 7631 | Integrated Trailer Brake Controller Switch Low Reference | III | — |
| 28 | 0.35 | BN/WH | 781 | Driver Door Lock Switch Unlock Signal | III | — |
| 29 | 0.5 | YE | 7635 | Integrated Trailer Brake Controller Manual Apply Signal | III | — |
| 30 | 0.5 | L-GN/GY | 963 | — | III | — |
| 31 | 2.5 | GY/BK | 966 | — | II | — |
| 32 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | III | — |
| 33 | 0.35 | VT/BN | 300 | Run Ignition 3 Voltage | I | — |
| 34 | 0.5 | YE/WH | 962 | — | III | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 35 | 2.5 | YE/BN | 967 | — | II | — |
| 36 | 0.35 | WH/GY | 5285 | Adjustable Pedal Switch Rearward Signal | III | — |
| 37 | — | — | — | Not Occupied | — | — |
| 38 | 0.5 | WH/D-BU | 964 | — | III | — |
| 39 | 1 | D-BU/VT | 1134 | Park Brake Switch Signal | III | — |
| 40 | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | III | — |
| 41 | 0.5 | L-GN/BK | 7633 | Integrated Trailer Brake Controller User Gain Signal | III | — |
| 42 | 0.35 | L-GN/GY | 5286 | Adjustable Pedal Switch Forward Signal | III | — |
| 43 | — | — | — | Not Occupied | — | — |
| 44 | 0.5 | WH/D-BU | 3691 | Trailer Brake Apply Signal | III | — |
| 45 | 0.35 | L-GN/BN | 5852 | Rear Park Assist LED Disable Signal | III | — |
| 46 | 0.5 | VT/WH | 1939 | Run/Crank Ignition 1 Voltage | I | — |
| 47 | 0.5 | WH | 6816 | Indicator Dimming Control | III | — |
| 48 | 2.5 | RD/L-GN | 968 | — | II | — |
| 49 | 0.35 | YE/WH | 816 | Brake Transmission Shift Interlock Solenoid Control | III | — |
| 50 | 2.5 | BK | 2550 | Ground | II | — |

## X61A Junction Block - Instrument Panel X2



### Connector Part Information

Harness Type: Body

OEM Connector: 33115109

Service Connector: 19329464

Description: 50-Way F 1.5, 2.8 OCS Series (GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575543 | J-35616-35 (VT) | J-38125-12A | 1326030-8 | Lear 17 | B | F |
| II | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| III | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| IV | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

### *X61A Junction Block - Instrument Panel X2*

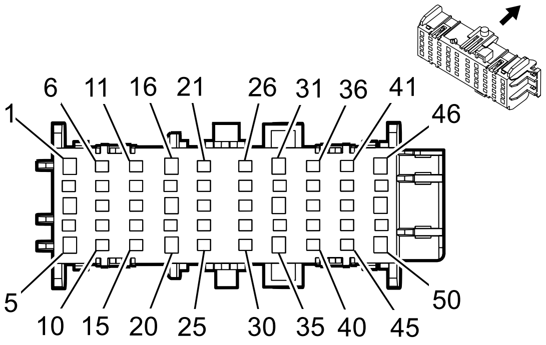
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | Not Occupied | — | — |
| 3 | 4 | RD/GY | 1342 | Battery Positive Voltage | I | — |
| 4 | 0.35 | D-BU | 2307 | Passenger Air Bag On Indicator Control | IV | — |
| 5 | 0.5 | RD/L-GN | 3140 | Battery Positive Voltage | II | — |
| 6 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | IV | — |
| 7 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | IV | — |
| 8 | 0.35 | WH/RD | 6207 | Memory Sensor High Reference | IV | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | 0.35 | BK/YE | 1691 | Automatic Day/Night Mirror Low Reference | IV | — |
| 10 | 0.35 | YE/WH | 1690 | Automatic Day/Night Mirror Signal | IV | — |
| 11 | 0.35 | D-BU | 5952 | Adjustable Pedal Position Sensor Brake Signal | IV | — |
| 12 | 1.5 | YE | 5129 | Adjustable Pedal Actuator Rearward Control | IV | A45 |
| | 0.75 | YE | 5129 | Adjustable Pedal Actuator Rearward Control | IV | -A45 |
| 13 - 14 | — | — | — | Not Occupied | — | — |
| 15 | 0.35 | L-GN/WH | 24 | Backup Lamp Control | IV | — |
| 16 | 2.5 | YE/BN | 1569 | Transfer Case Lock Solenoid Control | III | — |
| 17 | — | — | — | Not Occupied | — | — |
| 18 | 4 | BK | 550 | Ground | I | — |
| 19 | 0.35 | VT/WH | 5234 | Passenger Seat Belt Indicator Control | IV | — |
| 20 | — | — | — | Not Occupied | — | — |
| 21 | 1.5 | L-GN/VT | 5130 | Adjustable Pedal Actuator Forward Control | IV | A45 |
| | 0.75 | L-GN/VT | 5130 | Adjustable Pedal Actuator Forward Control | IV | -A45 |
| 22 | 0.35 | BK/GY | 6206 | Memory Sensor Low Reference | IV | — |
| 23 | 0.5 | WH/BN | 6815 | Inadvertent Power Control | IV | — |
| 24 | 0.35 | L-GN | 2308 | Passenger Air Bag Off Indicator Control | IV | — |
| 25 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 26 | 0.35 | D-BU/GY | 7473 | Incremental Encoder Impulse Signal | IV | — |
| 27 | 0.35 | VT | 7476 | Incremental Encoder Sensor Low Reference | IV | — |
| 28 | — | — | — | Not Occupied | — | — |
| 29 | 0.5 | GY | 157 | Interior Lamp Control | IV | — |
| 30 | 0.35 | GY | 156 | Courtesy Lamp Switch Signal | IV | — |
| 31 | 4 | YE/VT | 1553 | Transfer Case Motor Counter Clockwise Control | I | — |
| 32 | 0.35 | YE | 7474 | Incremental Encoder Direction Signal | IV | — |
| 33 | 0.5 | VT/GY | 1054 | Stop Lamp Control | II | — |
| 34 | — | — | — | Not Occupied | — | — |
| 35 | 2.5 | RD/L-GN | 242 | Battery Positive Voltage | III | — |
| 36 | 0.35 | WH/L-GN | 7475 | Incremental Encoder Sensor 8V Reference | IV | — |
| 37 | 0.5 | YE/WH | 1695 | Four Wheel Drive Wheel Lock Indicator Control | IV | — |
| 38 | 0.35 | VT/YE | 5985 | Accessory Wakeup Serial Data | IV | — |
| 39 - 43 | — | — | — | Not Occupied | — | — |
| 44 | 0.5 | WH/D-BU | 3691 | Trailer Brake Apply Signal | IV | — |
| 45 | — | — | — | Not Occupied | — | — |
| 46 | 4 | YE/GY | 1552 | Transfer Case Motor Clockwise Control | I | — |
| 47 | 0.5 | L-GN/GY | 817 | Vehicle Speed Signal | IV | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 48 | 2.5 | D-BU | 47 | Trailer Auxiliary Control | III | — |
| 49 | — | — | — | Not Occupied | — | — |
| 50 | 0.35 | VT/YE | 43 | Accessory Ignition Voltage | II | — |

## X61A Junction Block - Instrument Panel X3



### Connector Part Information

Harness Type: Headliner

OEM Connector: 33115112

Service Connector: 19329467

Description: 50-Way F 1.5, 2.8 OCS Series (BU)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13578891 | J-35616-2A (GY) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| II | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| III | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| IV | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

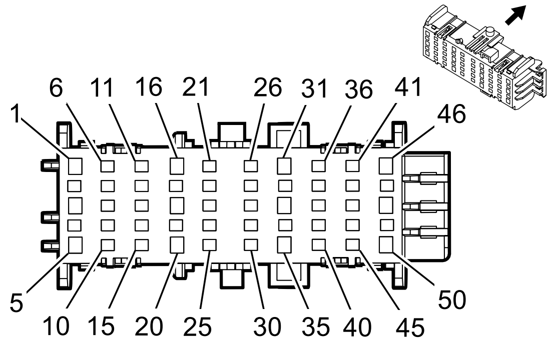
### *X61A Junction Block - Instrument Panel X3*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | RD/L-GN | 3140 | Battery Positive Voltage | II | UFL |
|  | 0.35 | RD/L-GN | 3140 | Battery Positive Voltage | II | UHX |
| 4 | 0.35 | D-BU | 2307 | Passenger Air Bag On Indicator Control | I | — |
| 5 - 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.75 | WH/VT | 1430 | Exterior Courtesy Lamp Control | IV | — |
| 8 | 0.35 | YE/WH | 1690 | Automatic Day/Night Mirror Signal | IV | — |
| 9 | 0.35 | BK/YE | 1691 | Automatic Day/Night Mirror Low Reference | IV | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | 0.35 | BK/YE | 1691 | Automatic Day/Night Mirror Low Reference | IV | — |
| 10 - 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.35 | L-GN/RD | 24 | Backup Lamp Control | IV | — |
| 14 - 16 | — | — | — | Not Occupied | — | — |
| 17 | 0.35 | L-GN/BK | 2515 | Keypad Control | IV | — |
| 18 | — | — | — | Not Occupied | — | — |
| 19 | 0.35 | VT/WH | 5234 | Passenger Seat Belt Indicator Control | I | — |
| 20 | — | — | — | Not Occupied | — | — |
| 21 | 0.35 | L-GN/D-BU | 2514 | Keypad Signal | IV | — |
| 22 | 0.35 | YE/BN | 2516 | Keypad Green LED Control | IV | — |
| 23 | — | — | — | Not Occupied | — | — |
| 24 | 0.35 | L-GN/RD | 2308 | Passenger Air Bag Off Indicator Control | I | — |
| 25 | 0.5 | WH/BN | 6815 | Inadvertent Power Control | IV | EXTENDED CAB/CREW CAB |
| | 0.5 | WH/BN | 6815 | Inadvertent Power Control | I | REGULAR CAB |
| 26 | 0.35 | WH | 6192 | Power Sliding Window Switch Close Signal | I | — |
| 27 | 0.5 | YE | 6817 | LED Backlight Dimming Control | I | EXTENDED CAB/CREW CAB |
| | 0.5 | YE | 6817 | LED Backlight Dimming Control | IV | REGULAR CAB |
| 28 | 0.35 | GY/D-BU | 156 | Courtesy Lamp Switch Signal | I | — |
| 29 | 0.5 | GY | 157 | Interior Lamp Control | I | EXTENDED CAB/CREW CAB |
| | 0.5 | GY | 157 | Interior Lamp Control | IV | REGULAR CAB |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 0.5 | GY | 157 | Interior Lamp Control | IV | REGULAR CAB |
| 30 - 31 | — | — | — | Not Occupied | — | — |
| 32 | 0.35 | YE/VT | 6191 | Power Sliding Window Switch Open Signal | I | — |
| 33 - 34 | — | — | — | Not Occupied | — | — |
| 35 | 0.5 | VT/GY | 1054 | Stop Lamp Control | II | — |
| 36 | 0.35 | BN/WH | 2517 | Keypad Red LED Control | IV | — |
| 37 - 40 | — | — | — | Not Occupied | — | — |
| 41 | 0.35 | GY/L-GN | 328 | Interior Lamp Defeat Switch Signal | I | — |
| 42 | 0.35 | VT/L-GN | 7558 | LED Ambient Lighting Control 2 | I | EXTENDED CAB/CREW CAB |
| | 0.35 | VT/L-GN | 7558 | LED Ambient Lighting Control 2 | IV | REGULAR CAB |
| 43 - 44 | — | — | — | Not Occupied | — | — |
| 45 | 0.35 | GY/WH | 3153 | Lane Departure Warning Disable Switch Signal | IV | — |
| 46 | 2.5 | BK | 1050 | Ground | III | — |
| 47 | 0.35 | L-GN | 5060 | Low Speed GMLAN Serial Data | IV | — |
| 48 | — | — | — | Not Occupied | — | — |
| 49 | 0.35 | WH | 3152 | Lane Departure Warning Indicator Control | IV | — |
| 50 | — | — | — | Not Occupied | — | — |

## X61A Junction Block - Instrument Panel X4



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 33115110

Service Connector: 19329465

Description: 50-Way F 1.5, 2.8 OCS Series (NA)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| II | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

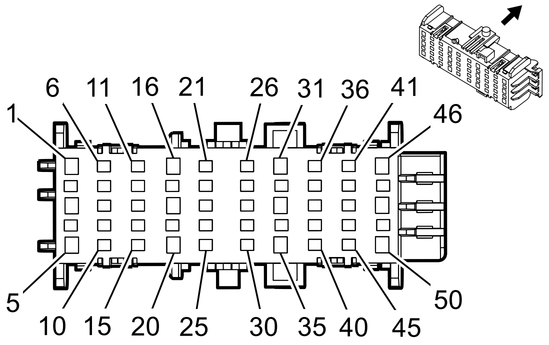
### *X61A Junction Block - Instrument Panel X4*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | I | — |
| 2 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | II | — |
| 3 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | I | — |
| 4 | 0.75 | WH/VT | 1430 | Exterior Courtesy Lamp Control | II | — |
| 5 | — | — | — | Not Occupied | — | — |
| 6 | 0.35 | GY | 5697 | Child Lockout Indicator Control | II | — |
| 7 | 0.5 | BN | 7634 | Integrated Trailer Brake Controller Redundant Manual Apply Signal | II | — |
| 8 | 0.35 | BN/YE | 780 | Driver Door Lock Switch Lock Signal | II | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | 0.35 | VT | 185 | Low Washer Fluid Indicator Control | II | — |
| 10 | 0.5 | RD/WH | 961 | — | II | — |
| 11 | 0.5 | L-GN/GY | 963 | — | II | — |
| 12 | 0.5 | YE | 7635 | Integrated Trailer Brake Controller Manual Apply Signal | II | — |
| 13 | 0.35 | BN/WH | 781 | Driver Door Lock Switch Unlock Signal | II | — |
| 14 | 0.5 | BK/BN | 7631 | Integrated Trailer Brake Controller Switch Low Reference | II | — |
| 15 | 0.5 | D-BU/RD | 7632 | Integrated Trailer Brake Controller Switch 5V Reference | II | — |
| 16 | — | — | — | Not Occupied | — | — |
| 17 | 0.5 | YE/WH | 962 | — | II | — |
| 18 | 0.35 | VT/BN | 300 | Run Ignition 3 Voltage | I | — |
| 19 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | II | — |
| 20 - 21 | — | — | — | Not Occupied | — | — |
| 22 | 0.5 | D-BU/VT | 1134 | Park Brake Switch Signal | II | — |
| 23 | 0.5 | WH/D-BU | 964 | — | II | — |
| 24 | — | — | — | Not Occupied | — | — |
| 25 | 0.35 | WH/GY | 5285 | Adjustable Pedal Switch Rearward Signal | II | — |
| 26 | 0.35 | L-GN/BN | 5852 | Rear Park Assist LED Disable Signal | II | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 27 | 0.5 | WH/D-BU | 3691 | Trailer Brake Apply Signal | II | — |
| 28 | — | — | — | Not Occupied | — | — |
| 29 | 0.35 | L-GN/GY | 5286 | Adjustable Pedal Switch Forward Signal | II | — |
| 30 | 0.5 | L-GN/BK | 7633 | Integrated Trailer Brake Controller User Gain Signal | II | — |
| 31 | 0.35 | BK | 2550 | Ground | I | — |
| 32 | 0.35 | YE/WH | 816 | Brake Transmission Shift Interlock Solenoid Control | II | — |
| 33 | — | — | — | Not Occupied | — | — |
| 34 | 0.5 | WH | 6816 | Indicator Dimming Control | II | — |
| 35 - 36 | — | — | — | Not Occupied | — | — |
| 37 | 0.35 | WH | 6816 | Indicator Dimming Control | II | — |
| 38 | 0.35 | WH | 6816 | Indicator Dimming Control | II | — |
| 39 - 44 | — | — | — | Not Occupied | — | — |
| 45 | 0.35 | GY/L-GN | 2555 | Rear Park Assist Disable Signal | II | — |
| 46 - 50 | — | — | — | Not Occupied | — | — |

## X61A Junction Block - Instrument Panel X5



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 33115111

Service Connector: 19329466

Description: 50-Way F 1.5, 2.8 OCS Series (GN)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| II | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| III | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

### *X61A Junction Block - Instrument Panel X5*

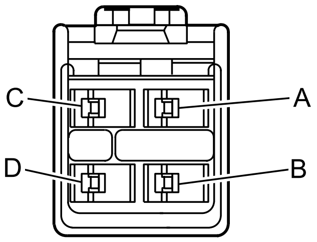
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | — | Not Occupied | — | — |
| 2 | 0.35 | YE/VT | 2516 | Keypad Green LED Control | III | — |
| 3 | 0.35 | BK/L-GN | 552 | Sensor Low Reference | I | — |
| 4 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | III | — |
| 5 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 6 | 0.5 | YE | 6817 | LED Backlight Dimming Control | III | — |
| 7 | 0.35 | L-GN/WH | 2514 | Keypad Signal | III | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 8 | 0.35 | GY/RD | 598 | 5V Reference | III | — |
| 9 | 0.35 | WH/L-GN | 526 | Stop Lamp Switch Signal | III | — |
| 10 | 0.35 | D-BU/YE | 1693 | Four Wheel Drive Switch Signal | III | — |
| 11 | 0.35 | GY/WH | 3153 | Lane Departure Warning Disable Switch Signal | III | — |
| 12 | 0.35 | YE/VT | 6191 | Power Sliding Window Switch Open Signal | III | — |
| 13 | 0.35 | WH | 6192 | Power Sliding Window Switch Close Signal | III | — |
| 14 | 0.35 | BN | 1560 | Neutral Indicator Control | III | — |
| 15 | 0.35 | GY/RD | 6029 | Four Wheel Drive Mode Switch 5V Reference | III | — |
| 16 | 2.5 | BK | 1050 | Ground | II | — |
| 17 - 18 | — | — | — | Not Occupied | — | — |
| 19 | 0.35 | L-GN/BK | 2515 | Keypad Control | III | — |
| 20 | — | — | — | Not Occupied | — | — |
| 21 | 0.5 | VT/L-GN | 7558 | LED Ambient Lighting Control 2 | III | — |
| 22 | 0.35 | BN/WH | 2517 | Keypad Red LED Control | III | — |
| 23 | 0.35 | BN/BK | 1566 | 4 HI Indicator Control | III | — |
| 24 | 0.35 | VT/WH | 1565 | 4 LO Indicator Control | III | — |
| 25 | 0.35 | VT/L-GN | 1739 | Run/Crank Ignition 1 Voltage | III | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 26 | 0.35 | WH | 3152 | Lane Departure Warning Indicator Control | III | — |
| 27 | 0.35 | GY/L-GN | 328 | Interior Lamp Defeat Switch Signal | III | — |
| 28 - 29 | — | — | — | Not Occupied | — | — |
| 30 | 0.35 | GY/L-GN | 1561 | AWD Indicator Control | III | — |
| 31 | 1.5 | RD/YE | 2340 | Battery Positive Voltage | II | — |
| 32 | 0.5 | BK/WH | 1851 | Signal Ground | III | — |
| 33 | 0.75 | BK/WH | 1851 | Signal Ground | I | E29 |
| | 0.35 | BK/WH | 1851 | Signal Ground | I | -E29 |
| 34 | — | — | — | Not Occupied | — | — |
| 35 | 2.5 | BK/WH | 1851 | Signal Ground | II | — |
| 36 - 37 | — | — | — | Not Occupied | — | — |
| 38 | 0.5 | BK/WH | 1851 | Signal Ground | III | — |
| 39 | 0.35 | BK/WH | 1851 | Signal Ground | III | — |
| 40 | 0.35 | L-GN/BK | 1563 | 2 HI Indicator Control | III | — |
| 41 | 0.35 | BK/WH | 1851 | Signal Ground | III | — |
| 42 - 43 | — | — | — | Not Occupied | — | — |
| 44 | 0.35 | BK | 2550 | Ground | III | — |
| 45 | 0.35 | BK | 2550 | Ground | III | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 46 | 0.75 | BK | 2550 | Ground | I | IO4/IO5/IO6 |
| | 0.35 | BK | 2550 | Ground | I | IO5/IO6 |
| 47 | 0.35 | BK | 2550 | Ground | III | — |
| 48 | 0.75 | BK | 2550 | Ground | I | TG5 |
| | 0.5 | BK | 2550 | Ground | I | U42 |
| 49 | 0.35 | BK | 2550 | Ground | III | — |
| 50 | 0.75 | BK | 2550 | Ground | I | — |

## X61A Junction Block - Instrument Panel X6



### Connector Part Information

Harness Type: Trailer Jumper

OEM Connector: 12194033

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 280 Metri-Pack Flexlock Series (CR)

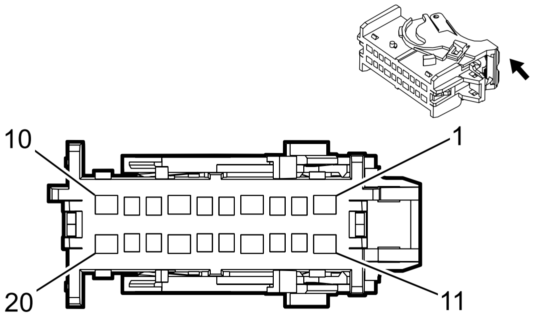
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X61A Junction Block - Instrument Panel X6*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | BK | 1050 | Ground | I | — |
| B | 0.5 | WH/D-BU | 3691 | Trailer Brake Apply Signal | I | — |
| C | 2.5 | RD/L-GN | 242 | Battery Positive Voltage | I | — |
| D | 2.5 | D-BU | 47 | Trailer Auxiliary Control | I | — |

## X61A Junction Block - Instrument Panel X8



### Connector Part Information

Harness Type: Brake Clutch

OEM Connector: 15547106

Service Connector: Service by Harness - See Part Catalog

Description: 20-Way F 1.5, 2.8 OCS Series (BK)

### *Terminal Part Information*

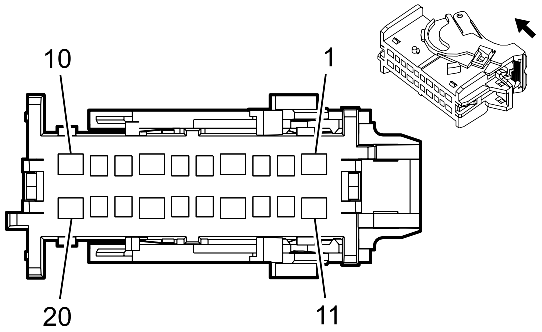
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X61A Junction Block - Instrument Panel X8*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.5 | WH/L-GN | 526 | Stop Lamp Switch Signal | I | — |
| 9 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 10 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | — |
| 11 | — | — | — | Not Occupied | — | — |
| 12 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 13 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 14 | 0.5 | WH/RD | 6207 | Memory Sensor High Reference | II | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 15 | 0.5 | D-BU | 5952 | Adjustable Pedal Position Sensor Brake Signal | I | — |
| 16 | 1.5 | YE | 5129 | Adjustable Pedal Actuator Rearward Control | I | — |
| 17 | 0.5 | BK/GY | 6206 | Memory Sensor Low Reference | II | — |
| 18 | 1.5 | L-GN/VT | 5130 | Adjustable Pedal Actuator Forward Control | I | — |
| 19 | 0.5 | BK/L-GN | 552 | Sensor Low Reference | I | — |
| 20 | 0.5 | GY/RD | 598 | 5V Reference | II | — |

## X61A Junction Block - Instrument Panel X9



### Connector Part Information

Harness Type: Brake Clutch

OEM Connector: 15547107

Service Connector: Service by Harness - See Part Catalog

Description: 20-Way F 1.5, 2.8 OCS Series (GY)

### *Terminal Part Information*

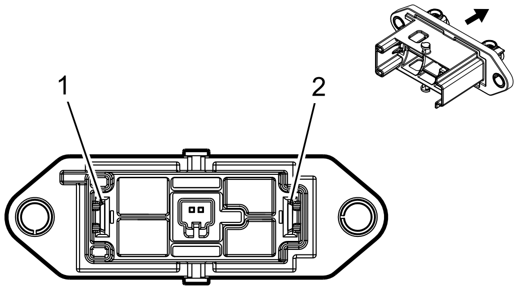
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X61A Junction Block - Instrument Panel X9*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | YE/BN | 1569 | Transfer Case Lock Solenoid Control | II | — |
| 2 | 0.35 | D-BU/YE | 1693 | Four Wheel Drive Switch Signal | I | — |
| 3 | 0.35 | GY/RD | 6029 | Four Wheel Drive Mode Switch 5V Reference | I | — |
| 4 | 0.35 | BN/BK | 1566 | 4 HI Indicator Control | II | — |
| 5 | 0.35 | VT/WH | 1565 | 4 LO Indicator Control | I | — |
| 6 | 0.35 | VT/L-GN | 1739 | Run/Crank Ignition 1 Voltage | I | — |
| 7 | 0.35 | VT/YE | 5985 | Accessory Wakeup Serial Data | II | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | 0.35 | L-GN/BK | 1563 | 2 HI Indicator Control | I | — |
| 9 | 0.35 | GY/L-GN | 1561 | AWD Indicator Control | I | — |
| 10 | 0.5 | GY/BK | 1570 | Front Axle Actuator Control | II | — |
| 11 | 3 | RD/GY | 1342 | Battery Positive Voltage | II | — |
| 12 | 0.35 | BN | 1560 | Neutral Indicator Control | I | — |
| 13 | 0.35 | VT | 7476 | Incremental Encoder Sensor Low Reference | I | — |
| 14 | 3 | BK | 550 | Ground | II | — |
| 15 | 0.35 | D-BU/GY | 7473 | Incremental Encoder Impulse Signal | I | — |
| 16 | 0.35 | YE | 7474 | Incremental Encoder Direction Signal | I | — |
| 17 | 4 | YE/VT | 1553 | Transfer Case Motor Counter Clockwise Control | II | — |
| 18 | 0.35 | WH/L-GN | 7475 | Incremental Encoder Sensor 8V Reference | I | — |
| 19 | 0.5 | YE/WH | 1695 | Four Wheel Drive Wheel Lock Indicator Control | I | — |
| 20 | 4 | YE/GY | 1552 | Transfer Case Motor Clockwise Control | II | — |

## A4 Hybrid/EV Battery Pack



### Connector Part Information

Harness Type: High Voltage Battery Manual Service Disconnect

OEM Connector: 33213213

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F MSD 125 Receptacle (BK)

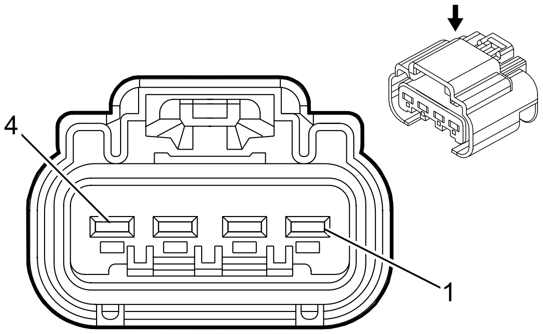
### Terminal Part Information

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### A4 Hybrid/EV Battery Pack

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 12 | OG | 3970 | High Voltage Battery 4 (+) | I | — |
| 2 | 12 | OG | 3970 | High Voltage Battery 4 (+) | I | — |

## A6C Fuel Pump and Level Sensor Assembly - Primary



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13527865

Service Connector: 13587174

Description: 4-Way F 280 GT Series, Sealed (NA)

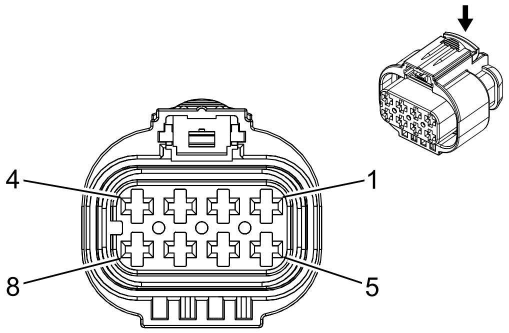
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A6C Fuel Pump and Level Sensor Assembly - Primary*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | GY | 120 | Fuel Pump Control | I | — |
| 2 | 2.5 | BK/L-GN | 1580 | Fuel Pump Low Reference | I | — |
| 3 | 0.5 | BK/L-GN | 6281 | Fuel Level Sensor Low Reference | I | — |
| 4 | 0.5 | D-BU/VT | 1589 | Primary Fuel Level Sensor Signal | I | — |

# A6D Fuel Pump and Level Sensor Assembly - Secondary



## Connector Part Information

Harness Type: Chassis

OEM Connector: 33180742

Service Connector: 19354078

Description: 8-Way F 2.8 Series, Sealed (L-GY)

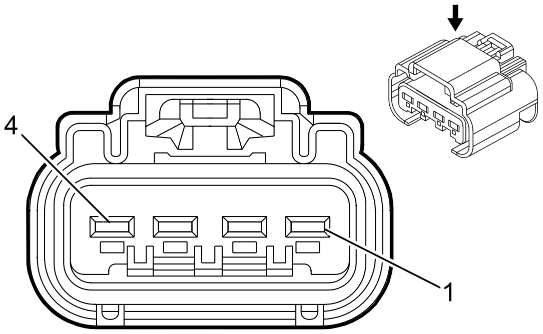
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *A6D Fuel Pump and Level Sensor Assembly - Secondary*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | GY | 120 | Fuel Pump Control | I | — |
| 2 | 2.5 | BK | 2150 | Ground | I | — |
| 3 - 4 | — | — | — | Not Occupied | — | — |
| 5 | 0.5 | D-BU/WH | 1937 | Secondary Fuel Level Sensor Signal | I | — |
| 6 | 0.5 | BK/L-GN | 6281 | Fuel Level Sensor Low Reference | I | — |
| 7 - 8 | — | — | — | Not Occupied | — | — |

## A7 Fuel Pump and Level Sensor Assembly



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13527865

Service Connector: 13587174

Description: 4-Way F 280 GT Series, Sealed (NA)

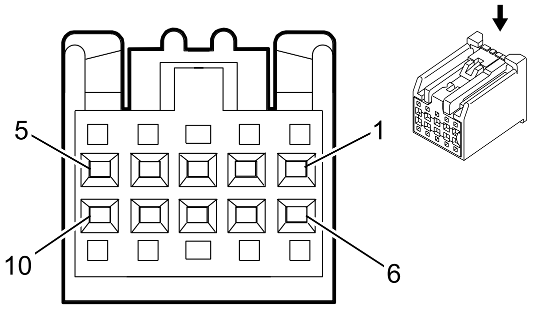
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A7 Fuel Pump and Level Sensor Assembly*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | GY | 120 | Fuel Pump Control | I | — |
| 2 | 2.5 | BK/L-GN | 1580 | Fuel Pump Low Reference | I | — |
| 3 | 0.5 | BK/L-GN | 6281 | Fuel Level Sensor Low Reference | I | — |
| 4 | 0.5 | D-BU/VT | 1589 | Primary Fuel Level Sensor Signal | I | — |

## A10 Inside Rearview Mirror



### Connector Part Information

Harness Type: Headliner

OEM Connector: 13815336

Service Connector: 13577390

Description: 10-Way F 0.64 Kaizen Series (BK)

### *Terminal Part Information*

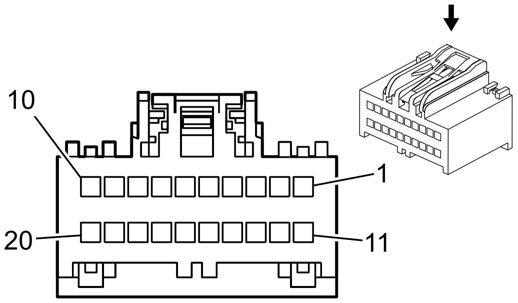
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300440 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |

### *A10 Inside Rearview Mirror*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | L-GN/RD | 24 | Backup Lamp Control | I | — |
| 2 | 0.35 | VT/L-GN | 1739 | Run/Crank Ignition 1 Voltage | I | — |
| 3 | 0.35 | L-GN/D-BU | 2514 | Keypad Signal | I | — |
| 4 | 0.35 | L-GN/BK | 2515 | Keypad Control | I | — |
| 5 | 0.5 | BK | 1050 | Ground | I | — |
| 6 | 0.35 | YE/BN | 2516 | Keypad Green LED Control | I | — |
| 7 | 0.35 | BN/WH | 2517 | Keypad Red LED Control | I | — |
| 8 | 0.35 | BK/YE | 1691 | Automatic Day/Night Mirror Low Reference | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | 0.35 | YE/WH | 1690 | Automatic Day/Night Mirror Signal | I | — |
| 10 | — | — | — | Not Occupied | — | — |

## A11 Radio X1



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 15491304

Service Connector: 15126710

Description: 20-Way F USCAR 64 Series (GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575867 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |
| II | 19300440 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |

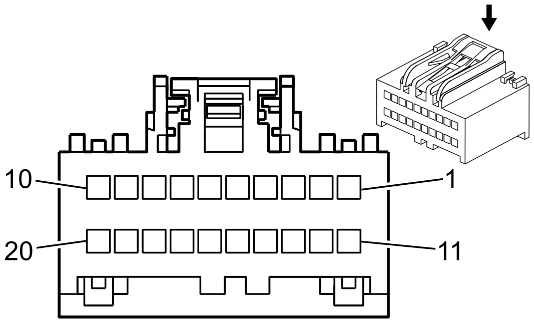
### *A11 Radio X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | BK | 2550 | Ground | I | — |
| 2 | 0.35 | GY/BN | 9003 | — | II | — |
| 3 | 0.35 | BN | 9004 | — | II | — |
| 4 | 0.35 | WH/D-BU | 6973 | Camera Signal 2 | II | IO3 |
| | 0.5 | GY/L-GN | 1102 | Low Speed GMLAN Serial Data #2 | II | IOB |
| 5 | 0.35 | GY/YE | 6972 | Camera Signal 2 + | II | — |
| 6 | 0.5 | BARE | 5842 | Auxiliary Audio Screen 2 | II | IO3 |
| | 0.35 | BK/GY | 5152 | Voice Recognition Audio Low Reference | II | IOB+UE1 |

| | | | | | | |
|---|---|---|---|---|---|---|
| | 0.35 | BK/BN | 654 | Cellular Telephone Microphone Low Reference | II | IOB-UE1 |
| 7 | 0.35 | D-BU | 2060 | Auxiliary Detection Signal | II | IO3 |
| | 0.35 | GY/YE | 5149 | Voice Recognition Audio Signal | II | IOB+UE1 |
| | 0.35 | D-BU | 655 | Cellular Telephone Microphone Signal | II | IOB-UE1 |
| 8 | 0.35 | VT | 5843 | Auxiliary Audio Common Signal | II | IO3 |
| | 0.35 | BN/L-GN | 3983 | Display Radio Bank Switch Signal 2 | II | IOB |
| 9 | 0.35 | GY | 5839 | Left Auxiliary Audio Signal 2 | II | IO3 |
| | 0.35 | BK/YE | 659 | Cellular Telephone Voice Low Reference | II | IOB |
| 10 | 0.35 | L-GN | 5841 | Right Auxiliary Audio Signal 2 | II | IO3 |
| | 0.35 | YE | 658 | Cellular Telephone Voice Signal | II | IOB |
| 11 | 0.75 | RD/VT | 340 | Battery Positive Voltage | I | — |
| 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.5 | L-GN/D-BU | 7532 | Local Interconnect Network Serial Data Bus 10 | II | — |
| 14 | 0.35 | WH/D-BU | 6973 | Camera Signal 2 | II | IOB |
| | 0.5 | GY/L-GN | 1102 | Low Speed GMLAN Serial Data #2 | II | -IOB |
| 15 | 0.35 | GY/YE | 6972 | Camera Signal 2 + | II | — |
| 16 | 0.5 | BARE | 5842 | Auxiliary Audio Screen 2 | II | — |
| 17 | 0.35 | D-BU | 2060 | Auxiliary Detection Signal | II | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| [illegible] | [illegible] | [illegible] | [illegible] | Auxiliary Detection Signal | II | |
| 18 | 0.35 | VT | 5843 | Auxiliary Audio Common Signal | II | — |
| 19 | 0.35 | GY | 5839 | Left Auxiliary Audio Signal 2 | II | IOB |
| | 0.35 | BK/YE | 659 | Cellular Telephone Voice Low Reference | II | -IOB |
| 20 | 0.35 | L-GN | 5841 | Right Auxiliary Audio Signal 2 | II | IOB |
| | 0.35 | YE | 658 | Cellular Telephone Voice Signal | II | -IOB |

## A11 Radio X2 (IOB)



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 15491305

Service Connector: 15126709

Description: 20-Way F USCAR 64 Series (BN)

### *Terminal Part Information*

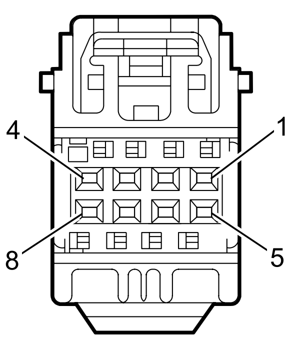
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575867 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |
| II | 19300440 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |

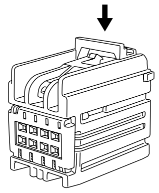
### *A11 Radio X2 (IOB)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.35 | GY | 314 | Radio On Signal | II | — |
| 4 | 0.35 | VT/GY | 1381 | LCD Dimming Signal | II | — |
| 5 | 0.35 | GY/D-BU | 3989 | Display Radio Bank Switch Dim Signal | II | — |
| 6 | 0.35 | BN/L-GN | 4502 | Video Display Request Signal | II | — |
| 7 | 0.35 | BN/L-GN | 3364 | Navigation Display Reset Signal | II | — |
| 8 | 0.35 | D-BU | 4315 | Radio Volume Up Signal | II | — |
| 9 | 0.35 | GY/BN | 4314 | Radio Volume Down Signal | II | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | 0.75 | BK | 2550 | Ground | I | — |
| 11 | 0.5 | WH | 46 | Right Rear Speaker Control (+) | II | — |
| 12 | 0.5 | D-BU/BK | 115 | Right Rear Speaker Signal (-) | II | — |
| 13 | 0.5 | L-GN | 199 | Left Rear Speaker Control (+) | II | — |
| 14 | 0.5 | L-GN/BK | 116 | Left Rear Speaker Signal (-) | II | — |
| 15 | 0.75 | YE/BK | 117 | Right Front Speaker Signal (-) 1 | I | — |
| 16 | 0.75 | YE | 200 | Right Front Speaker Control (+) 1 | I | — |
| 17 | 0.75 | BN/D-BU | 118 | Left Front Speaker Signal (-) 1 | I | — |
| 18 | 0.75 | D-BU | 201 | Left Front Speaker Control (+) 1 | I | — |
| 19 | — | — | — | Not Occupied | — | — |
| 20 | 0.75 | RD/VT | 340 | Battery Positive Voltage | I | — |

## A11 Radio X2 (-IOB)





## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13551679

Service Connector: 19115653

Description: 8-Way F YESC Kaizen Series (L-GY)

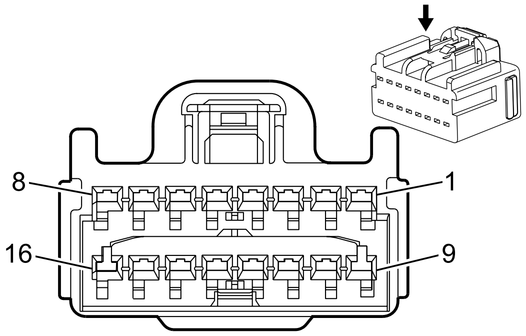
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *A11 Radio X2 (-IOB)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | WH/L-GN | 3997 | MOST Serial Data (-) | I | — |
| 2 | 0.5 | GY/VT | 3998 | MOST Serial Data (+) | I | — |
| 3 | 0.5 | WH/L-GN | 3997 | MOST Serial Data (-) | I | — |
| 4 | 0.5 | GY/VT | 3998 | MOST Serial Data (+) | I | — |
| 5 - 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.35 | WH/VT | 3999 | MOST Control | I | — |
| 8 | — | — | — | Not Occupied | — | — |

## A11 Radio X3



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 10847013

Service Connector: 89047090

Description: 16-Way F 1.5 Kaizen Series (GN)

### *Terminal Part Information*

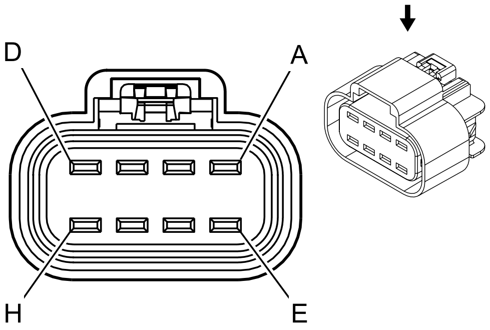
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | 13578891 | J-35616-2A (GY) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |

### *A11 Radio X3*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | D-BU | 201 | Left Front Speaker Control (+) 1 | I | — |
| 2 | 0.75 | YE | 200 | Right Front Speaker Control (+) 1 | I | — |
| 3 | 0.5 | L-GN | 199 | Left Rear Speaker Control (+) | II | — |
| 4 | 0.5 | WH | 46 | Right Rear Speaker Control (+) | II | — |
| 5 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.75 | RD/VT | 340 | Battery Positive Voltage | I | — |
| 9 | 0.75 | BN/D-BU | 118 | Left Front Speaker Signal (-) 1 | I | — |
| 10 | 0.75 | YE/BK | 117 | Right Front Speaker Signal (-) 1 | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 11 | 0.5 | L-GN/BK | 116 | Left Rear Speaker Signal (-) | II | — |
| 12 | 0.5 | D-BU/BK | 115 | Right Rear Speaker Signal (-) | II | — |
| 13 - 15 | — | — | — | Not Occupied | — | — |
| 16 | 0.75 | BK | 2550 | Ground | I | — |

## A16 Transfer Case Motor (L5P)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13669205

Service Connector: 19300464

Description: 8-Way F 280 GT Series, Sealed (BK)

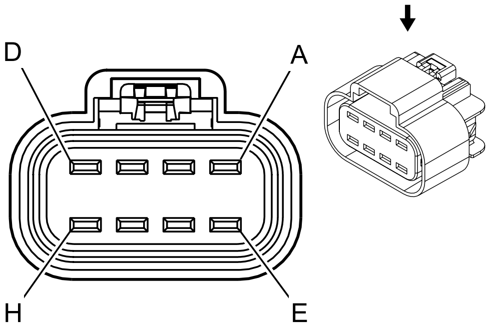
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A16 Transfer Case Motor (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 3 | OG | 1552 | Transfer Case Motor Clockwise Control | I | — |
| B - C | — | — | — | Not Occupied | — | — |
| D | 3 | YE/VT | 1553 | Transfer Case Motor Counter Clockwise Control | I | — |
| E | 0.5 | D-BU/GY | 7473 | Incremental Encoder Impulse Signal | I | — |
| F | 0.5 | YE | 7474 | Incremental Encoder Direction Signal | I | — |
| G | 0.5 | WH/L-GN | 7475 | Incremental Encoder Sensor 8V Reference | I | — |
| H | 0.5 | VT | 7476 | Incremental Encoder Sensor Low Reference | I | — |

## A16 Transfer Case Motor (L96)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13669205

Service Connector: 19300464

Description: 8-Way F 280 GT Series, Sealed (BK)

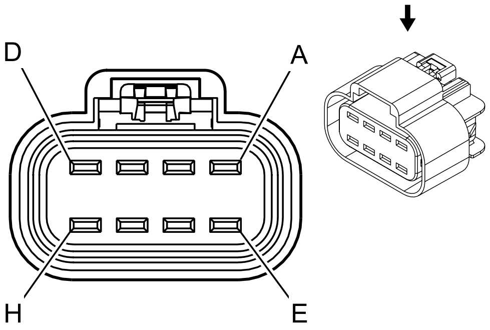
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A16 Transfer Case Motor (L96)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 3 | OG | 1552 | Transfer Case Motor Clockwise Control | I | — |
| B - C | — | — | — | Not Occupied | — | — |
| D | 3 | YE/VT | 1553 | Transfer Case Motor Counter Clockwise Control | I | — |
| E | 0.5 | D-BU/GY | 7473 | Incremental Encoder Impulse Signal | I | — |
| F | 0.5 | YE | 7474 | Incremental Encoder Direction Signal | I | — |
| G | 0.5 | WH/L-GN | 7475 | Incremental Encoder Sensor 8V Reference | I | — |
| H | 0.5 | VT | 7476 | Incremental Encoder Sensor Low Reference | I | — |

## A16 Transfer Case Motor (LV3)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13669205

Service Connector: 19300464

Description: 8-Way F 280 GT Series, Sealed (BK)

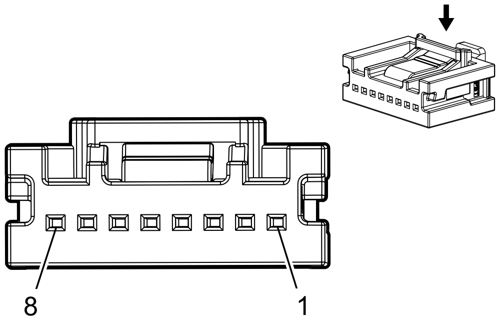
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A16 Transfer Case Motor (LV3)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 3 | OG | 1552 | Transfer Case Motor Clockwise Control | I | — |
| B | 3 | RD/GY | 1342 | Battery Positive Voltage | I | — |
| C | 2.5 | YE/BN | 1569 | Transfer Case Lock Solenoid Control | I | — |
| D | 3 | YE/VT | 1553 | Transfer Case Motor Counter Clockwise Control | I | — |
| E | 0.5 | D-BU/GY | 7473 | Incremental Encoder Impulse Signal | I | — |
| F | 0.5 | YE | 7474 | Incremental Encoder Direction Signal | I | — |
| G | 0.5 | WH/L-GN | 7475 | Incremental Encoder Sensor 8V Reference | I | — |
| H | 0.5 | VT | 7476 | Incremental Encoder Sensor Low Reference | I | — |

## A22 Radio Controls



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 15532151

Service Connector: 15532151

Description: 8-Way F 0.64 Series (BK)

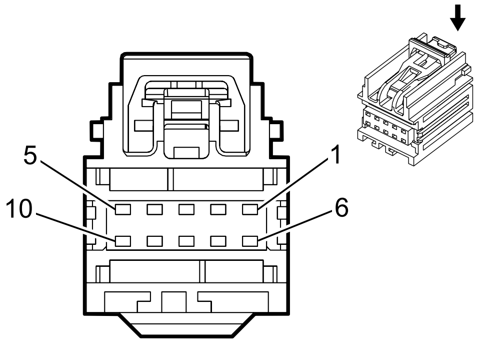
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A22 Radio Controls*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | GY/BN | 3761 | Infotainment Regulated Control | I | — |
| 2 | 0.35 | L-GN/BK | 2515 | Keypad Control | I | — |
| 3 | 0.35 | BN/L-GN | 3983 | Display Radio Bank Switch Signal 2 | I | — |
| 4 | 0.35 | GY | 314 | Radio On Signal | I | — |
| 5 | 0.35 | GY/D-BU | 3989 | Display Radio Bank Switch Dim Signal | I | — |
| 6 | 0.35 | D-BU | 4315 | Radio Volume Up Signal | I | — |
| 7 | 0.35 | GY/BN | 4314 | Radio Volume Down Signal | I | — |
| 8 | 0.35 | BK/BN | 2518 | Keypad Low Reference | I | — |

# A23D Door Latch Assembly - Driver



## Connector Part Information

Harness Type: Driver Door

OEM Connector: 33110655

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 0.64 YESC Kaizen Series (GN)

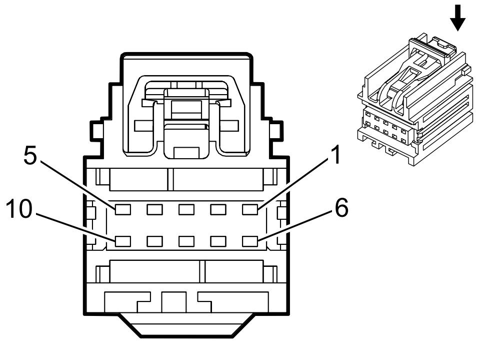
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *A23D Door Latch Assembly - Driver*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | GY | 745 | Left Front Door Ajar Switch Signal | I | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | BK | 1150 | Ground | I | — |
| 4 | 0.35 | WH/VT | 3270 | Driver Door Lock Motor Status Signal | I | — |
| 5 | 0.35 | D-BU/VT | 1124 | Door Lock Key Switch Unlock Signal | I | — |
| 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.75 | GY | 5911 | Door Lock Actuator Lock Control 2 | I | — |
| 8 | 0.75 | BN/BK | 294 | Door Lock Actuator Unlock Control | I | — |
| 9 - 10 | — | — | — | Not Occupied | — | — |

## A23LR Door Latch Assembly - Left Rear



### Connector Part Information

Harness Type: Left Rear Door

OEM Connector: 33110655

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 0.64 YESC Kaizen Series (GN)

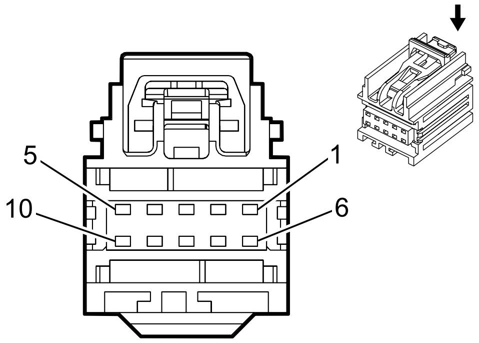
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A23LR Door Latch Assembly - Left Rear*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | GY/WH | 747 | Left Rear Door Ajar Switch Signal | I | — |
| 2 | 0.35 | BN/WH | 3269 | Child Security Lock Motor Status Signal Left Rear | I | — |
| 3 | 0.5 | BK | 1150 | Ground | I | — |
| 4 - 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.75 | GY | 295 | Door Lock Actuator Lock Control | I | — |
| 8 | 0.75 | BN/YE | 294 | Door Lock Actuator Unlock Control | I | — |
| 9 | 0.75 | WH/D-BU | 3266 | Child Security Lock Motor Lock Control | I | — |
| 10 | — | — | — | Not Occupied | — | — |

## A23P Door Latch Assembly - Passenger



### Connector Part Information

Harness Type: Passenger Door

OEM Connector: 33110655

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 0.64 YESC Kaizen Series (GN)

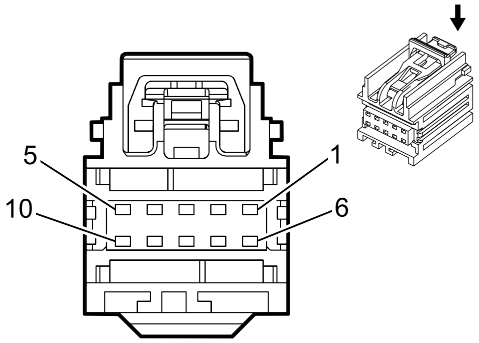
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A23P Door Latch Assembly - Passenger*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | BK | 1250 | Ground | I | — |
| 4 | — | — | — | Not Occupied | — | — |
| 5 | 0.35 | GY | 746 | Right Front Door Ajar Switch Signal | I | — |
| 6 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.75 | BN/YE | 294 | Door Lock Actuator Unlock Control | I | — |
| 9 | 0.75 | GY | 295 | Door Lock Actuator Lock Control | I | — |
| 10 | — | — | — | Not Occupied | — | — |

## A23RR Door Latch Assembly - Right Rear



### Connector Part Information

Harness Type: Right Rear Door

OEM Connector: 33110655

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 0.64 YESC Kaizen Series (GN)

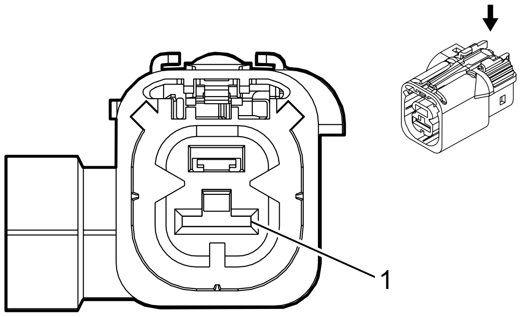
### Terminal Part Information

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### A23RR Door Latch Assembly - Right Rear

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | BK | 1250 | Ground | I | — |
| 4 | 0.35 | GY/BK | 3268 | Child Security Lock Motor Status Signal Right Rear | I | — |
| 5 | 0.35 | GY/WH | 748 | Right Rear Door Ajar Switch Signal | I | — |
| 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.75 | WH/D-BU | 3266 | Child Security Lock Motor Lock Control | I | — |
| 8 | 0.75 | BN/YE | 294 | Door Lock Actuator Unlock Control | I | — |
| 9 | 0.75 | GY | 295 | Door Lock Actuator Lock Control | I | — |
| 10 | — | — | — | Not Occupied | — | — |

# A28 Hybrid/EV Battery Contactor Assembly X1



## Connector Part Information

Harness Type: High Voltage Battery Negative

OEM Connector: 33119077

Service Connector: Service by Harness - See Part Catalog

Description: 1-Way F 6.3 Series (OG)

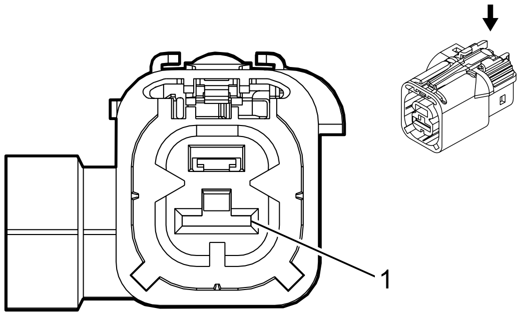
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *A28 Hybrid/EV Battery Contactor Assembly X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 12 | OG | 5084 | High Voltage Battery (+) | I | — |

## A28 Hybrid/EV Battery Contactor Assembly X2



### Connector Part Information

Harness Type: High Voltage Battery Positive

OEM Connector: 33119078

Service Connector: Service by Harness - See Part Catalog

Description: 1-Way F 6.3 Series (OG)

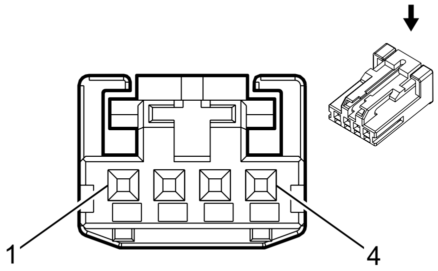
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A28 Hybrid/EV Battery Contactor Assembly X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 12 | OG | 5084 | High Voltage Battery (+) | I | — |

## A28 Hybrid/EV Battery Contactor Assembly X3



### Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 13969166

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 0.64 Micro-Quadlock Series (BK)

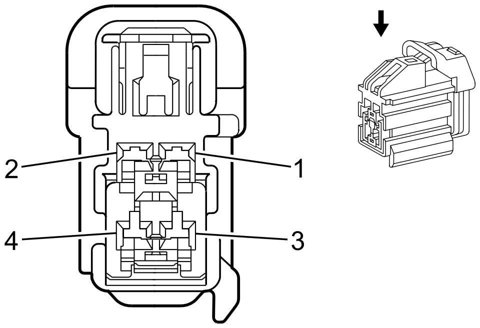
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A28 Hybrid/EV Battery Contactor Assembly X3*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | — | Not Occupied | — | — |
| 2 | 0.35 | VT/RD | 2965 | High Voltage Battery Current Sensor Voltage Reference | I | — |
| 3 | 0.35 | BK/GY | 2963 | High Voltage Battery Current Sensor Low Reference | I | — |
| 4 | 0.35 | D-BU/YE | 2962 | High Voltage Battery Current Sensor Course Signal | I | — |

# A28 Hybrid/EV Battery Contactor Assembly X4



## Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 10846820

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F YESC Kaizen Series (L-GY)

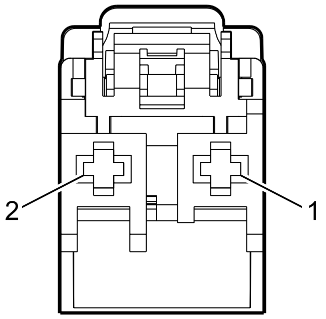
## *Terminal Part Information*

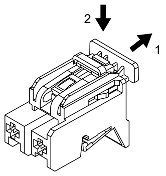
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *A28 Hybrid/EV Battery Contactor Assembly X4*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | GY | 5138 | Precharge Relay | I | — |
| 2 | 0.35 | BK | 150 | Ground | I | — |
| 3 | 0.35 | VT/GY | 3961 | High Voltage Battery (-) Relay Control | I | — |
| 4 | 0.35 | BN/L-GN | 3959 | High Voltage Battery 1 (+) Relay Control | I | — |

## A28 Hybrid/EV Battery Contactor Assembly X5





### Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 13848288

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 2.8 MCP Series (OG)

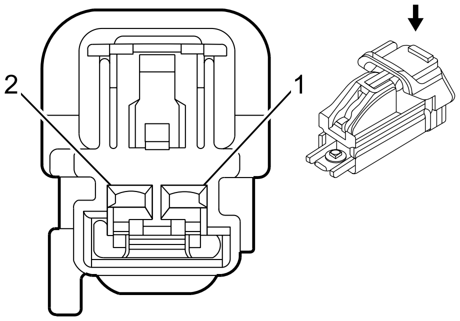
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A28 Hybrid/EV Battery Contactor Assembly X5*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT | 3546 | High Voltage Battery Positive Monitor Signal | I | — |
| 2 | 0.5 | GY/VT | 3548 | High Voltage Battery Negative Monitor Signal | I | — |

## A28 Hybrid/EV Battery Contactor Assembly X6



### Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 10846794

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.5 YESC Series (L-GY)

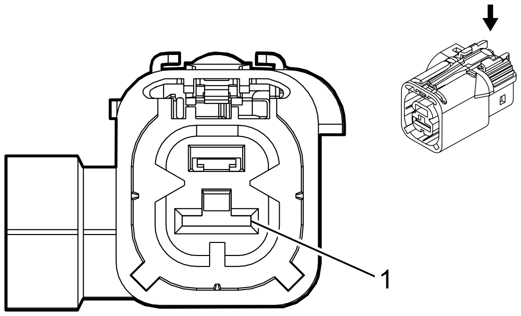
### Terminal Part Information

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### A28 Hybrid/EV Battery Contactor Assembly X6

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | BK | 150 | Ground | I | — |
| 2 | — | — | — | Not Occupied | — | — |

## A28 Hybrid/EV Battery Contactor Assembly X7



### Connector Part Information

Harness Type: High Voltage Body

OEM Connector: 33119078

Service Connector: Service by Harness - See Part Catalog

Description: 1-Way F 6.3 Series (OG)

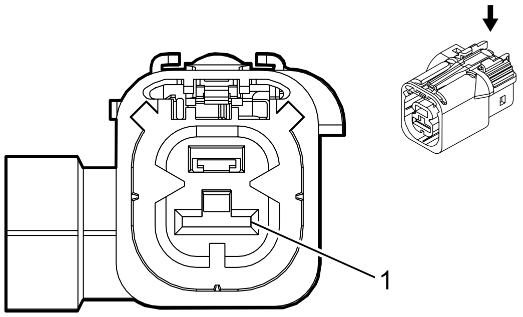
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A28 Hybrid/EV Battery Contactor Assembly X7*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 12 | OG | 5084 | High Voltage Battery (+) | I | — |

## A28 Hybrid/EV Battery Contactor Assembly X8



### Connector Part Information

Harness Type: High Voltage Body

OEM Connector: 33119077

Service Connector: Service by Harness - See Part Catalog

Description: 1-Way F 6.3 Series (OG)

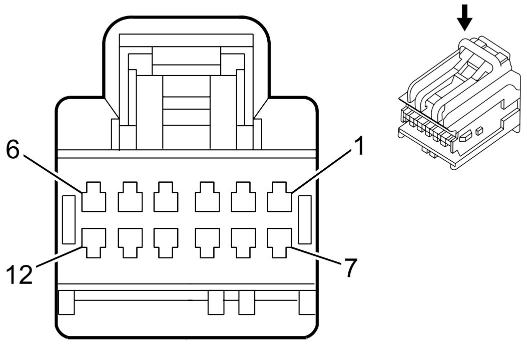
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *A28 Hybrid/EV Battery Contactor Assembly X8*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 12 | OG | 5083 | High Voltage Battery (-) | I | — |

## A33 Media Disc Player X1 (D07/U42)



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13784026

Service Connector: 13578574

Description: 12-Way F 0.64 Series (BK)

### *Terminal Part Information*

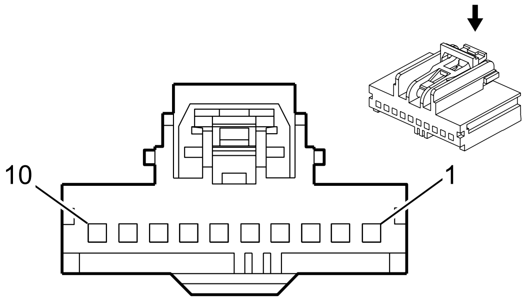
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575549 | J-35616-16 (LT GN) | J-38125-559 | 15445905 | Delphi 23 | J | J |
| II | 13582250 | J-35616-16 (LT GN) | J-38125-559 | 15445905 | Delphi 23 | K | K |

### *A33 Media Disc Player X1 (D07/U42)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | RD/VT | 340 | Battery Positive Voltage | II | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | WH/L-GN | 3997 | MOST Serial Data (-) | I | — |
| 4 | 0.5 | GY/VT | 3998 | MOST Serial Data (+) | I | — |
| 5 | 0.5 | WH/L-GN | 3997 | MOST Serial Data (-) | I | — |
| 6 | 0.5 | GY/VT | 3998 | MOST Serial Data (+) | I | — |
| 7 | 0.5 | BK | 2550 | Ground | I | — |
| 8 | 0.35 | L-GN/YE | 7066 | Entertainment Remote Enable Signal | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.35 | WH/VT | 3999 | MOST Control | I | — |
| 11 | 0.5 | GY/L-GN | 1102 | Low Speed GMLAN Serial Data #2 | I | — |
| 12 | — | — | — | Not Occupied | — | — |

## A33 Media Disc Player X1 (TG5)



## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 15490628

Service Connector: 89047355

Description: 10-Way F 0.64 Kaizen Series (BK)

## *Terminal Part Information*

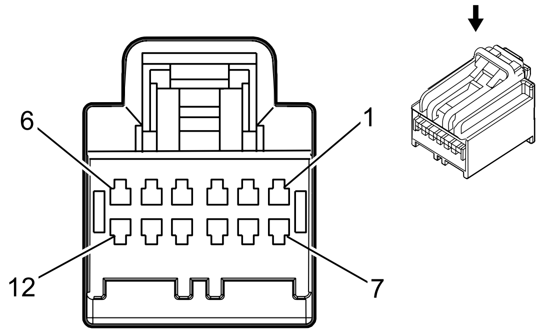
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575867 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |
| II | 19300440 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |

## *A33 Media Disc Player X1 (TG5)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | WH/VT | 3999 | MOST Control | II | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | WH/L-GN | 3997 | MOST Serial Data (-) | II | — |
| 4 | 0.5 | GY/VT | 3998 | MOST Serial Data (+) | II | — |
| 5 | 0.5 | WH/L-GN | 3997 | MOST Serial Data (-) | II | — |
| 6 | 0.5 | GY/VT | 3998 | MOST Serial Data (+) | II | — |
| 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.75 | BK | 2550 | Ground | I | — |
| 9 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.75 | RD/VT | 340 | Battery Positive Voltage | I | — |

## A33 Media Disc Player X2 (D07/U42)



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13587624

Service Connector: 19151154

Description: 12-Way F 64 Series, Sealed (GY)

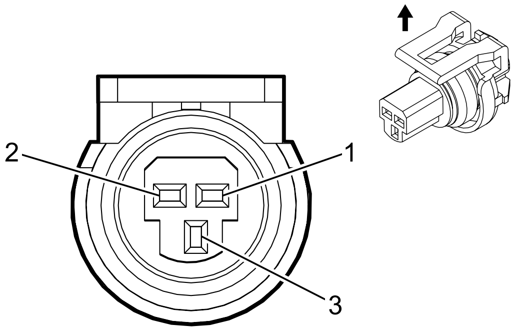
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300440 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |

### *A33 Media Disc Player X2 (D07/U42)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | L-GN/WH | 3355 | Left Rear Seat Audio Headphone Signal | I | — |
| 2 | 0.35 | BN/GY | 3357 | Right Rear Seat Audio Headphone Signal | I | — |
| 3 | 0.35 | D-BU/VT | 3356 | Rear Seat Audio Headphone Common Signal | I | — |
| 4 | 0.5 | BARE | 3354 | Rear Seat Audio Headphone Low Reference | I | — |
| 5 - 12 | — | — | — | Not Occupied | — | — |

# B1 A/C Refrigerant Pressure Sensor (L5P)



## Connector Part Information

Harness Type: Engine

OEM Connector: 13846842

Service Connector: 19301715

Description: 3-Way F 150 GT Series, Sealed (BK)

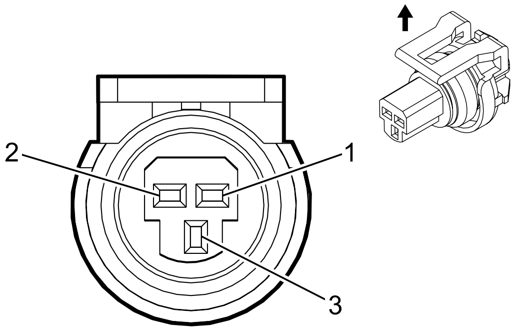
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B1 A/C Refrigerant Pressure Sensor (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/BN | 5514 | A/C Refrigerant Pressure Sensor Low Reference | I | — |
| 2 | 0.5 | BN/RD | 2700 | A/C Pressure Sensor 5V Reference | I | — |
| 3 | 0.5 | L-GN | 380 | A/C Refrigerant Pressure Sensor Signal | I | — |

# B1 A/C Refrigerant Pressure Sensor (L96)



## Connector Part Information

Harness Type: Engine

OEM Connector: 13846842

Service Connector: 19301715

Description: 3-Way F 150 GT Series, Sealed (BK)

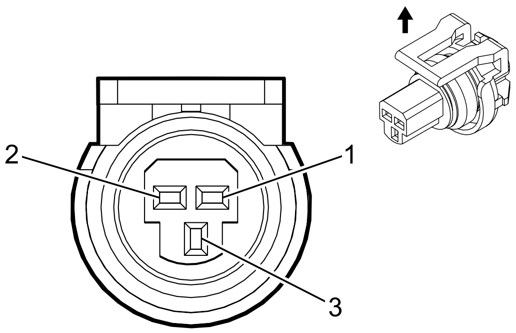
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B1 A/C Refrigerant Pressure Sensor (L96)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/BN | 5514 | A/C Refrigerant Pressure Sensor Low Reference | I | — |
| 2 | 0.5 | BN/RD | 2700 | A/C Pressure Sensor 5V Reference | I | — |
| 3 | 0.5 | L-GN | 380 | A/C Refrigerant Pressure Sensor Signal | I | — |

# B1 A/C Refrigerant Pressure Sensor (LV3)



## Connector Part Information

Harness Type: Engine

OEM Connector: 13846842

Service Connector: 19301715

Description: 3-Way F 150 GT Series, Sealed (BK)

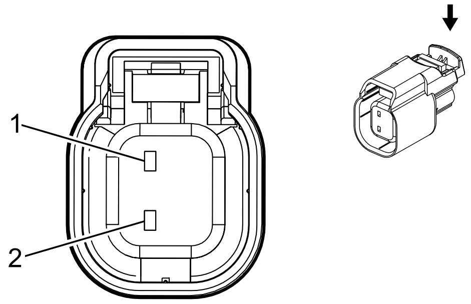
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B1 A/C Refrigerant Pressure Sensor (LV3)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/BN | 5514 | A/C Refrigerant Pressure Sensor Low Reference | I | — |
| 2 | 0.5 | BN/RD | 2700 | A/C Pressure Sensor 5V Reference | I | — |
| 3 | 0.5 | L-GN | 380 | A/C Refrigerant Pressure Sensor Signal | I | — |

## B5LF Wheel Speed Sensor - Left Front



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13828712

Service Connector: 19300543

Description: 2-Way F 1.5 Series, Sealed (BK)

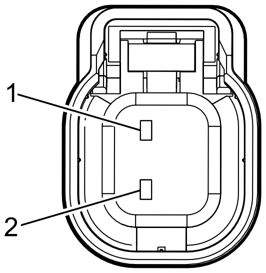
### *Terminal Part Information*

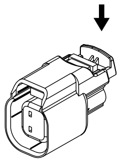
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B5LF Wheel Speed Sensor - Left Front*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/WH | 7064 | Wheel Speed Sensor Control Left Front | I | — |
| 2 | 0.5 | GY | 830 | Wheel Speed Sensor Signal Left Front | I | — |

## B5LR Wheel Speed Sensor - Left Rear





### Connector Part Information

Harness Type: Chassis

OEM Connector: 13828712

Service Connector: 19300543

Description: 2-Way F 1.5 Series, Sealed (BK)

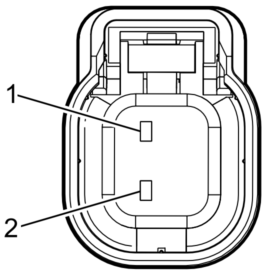
### *Terminal Part Information*

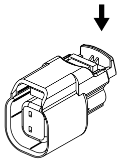
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B5LR Wheel Speed Sensor - Left Rear*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/BK | 7127 | Wheel Speed Sensor Control Left Rear | I | — |
| 2 | 0.5 | D-BU | 884 | Wheel Speed Sensor Signal Left Rear | I | — |

# B5RF Wheel Speed Sensor - Right Front





## Connector Part Information

Harness Type: Chassis

OEM Connector: 13828712

Service Connector: 19300543

Description: 2-Way F 1.5 Series, Sealed (BK)

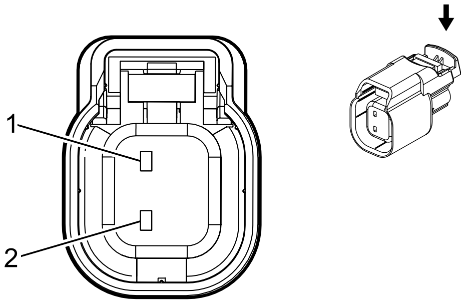
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B5RF Wheel Speed Sensor - Right Front*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/BN | 7065 | Wheel Speed Sensor Control Right Front | I | — |
| 2 | 0.5 | YE | 872 | Wheel Speed Sensor Signal Right Front | I | — |

# B5RR Wheel Speed Sensor - Right Rear



## Connector Part Information

Harness Type: Chassis

OEM Connector: 13828712

Service Connector: 19300543

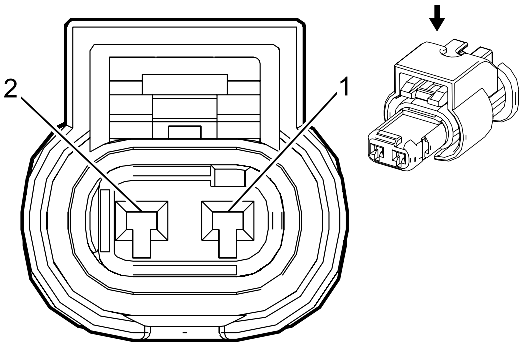
Description: 2-Way F 1.5 Series, Sealed (BK)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B5RR Wheel Speed Sensor - Right Rear*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/YE | 7128 | Wheel Speed Sensor Control Right Rear | I | — |
| 2 | 0.5 | VT | 882 | Wheel Speed Sensor Signal Right Rear | I | — |



## Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13927761

Service Connector: 19300402

Description: 2-Way F 1.2 MCP Series, Sealed (BK)

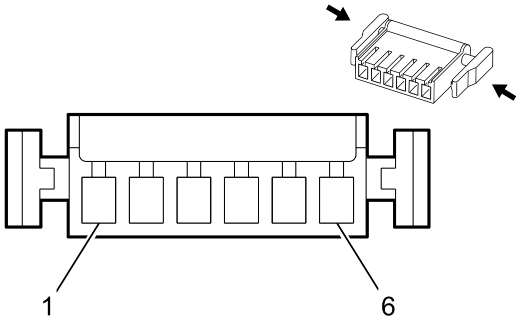
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B9D Ambient Air Temperature Sensor - Mirror*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | D-BU/GY | 636 | Outside Ambient Air Temperature Sensor Signal | I | — |
| 2 | 0.5 | BK/D-BU | 61 | Outside Ambient Temperature Sensor Low Reference | I | — |

# B10B Ambient Light/Sunload Sensor



## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13726957

Service Connector: 13576539

Description: 6-Way F 0.64 Micro-Quadlock Series (BK)

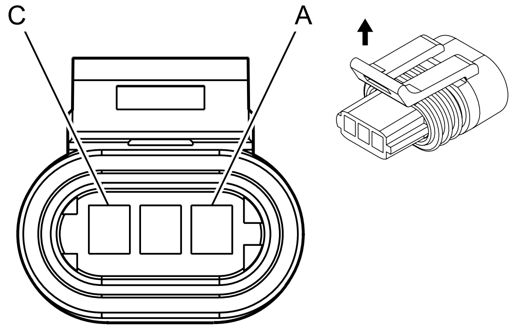
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B10B Ambient Light/Sunload Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | GY | 728 | Security Indicator Control | I | — |
| 2 | 0.35 | GY | 590 | Solar Sensor Driver Signal | I | — |
| 3 | 0.35 | D-BU/WH | 734 | Inside Air Temperature Sensor Signal | I | — |
| 4 | 0.35 | YE/VT | 1783 | Twilight Sentinel Delay Signal | I | — |
| 5 | 0.35 | WH/D-BU | 278 | Ambient Light Sensor Signal | I | — |
| 6 | 0.35 | BK/YE | 1791 | Air Temperature Door Control Low Reference | I | — |

## B14A Transmission Output Shaft Speed Sensor (LV1+(C67/C42))



### Connector Part Information

Harness Type: Engine

OEM Connector: 12162280

Service Connector: 12085538

Description: 3-Way F 150.2 Metri-Pack Series, Sealed (GY)

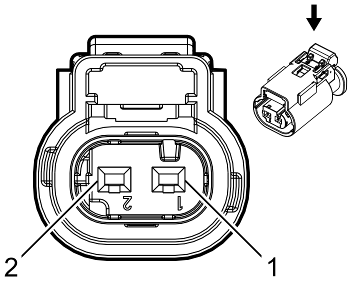
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B14A Transmission Output Shaft Speed Sensor (LV1+(C67/C42))*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | GY/BK | 3096 | Output Speed (Digital) Sensor 5V Reference | I | — |
| B | 0.5 | L-GN | 3098 | Output Speed (Digital) Signal | I | — |
| C | 0.5 | WH/BK | 3097 | Output Speed (Digital) Sensor Low Reference | I | — |

# B14B Transmission Turbine Speed Sensor (L5P)



## Connector Part Information

Harness Type: Engine

OEM Connector: 13735326

Service Connector: 13587326

Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

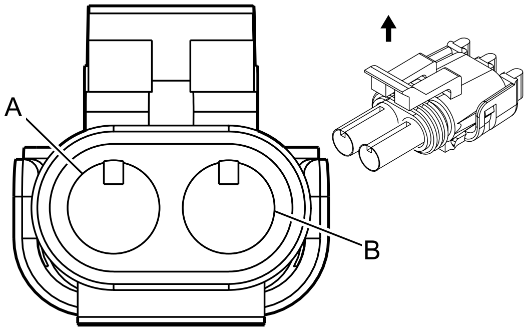
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B14B Transmission Turbine Speed Sensor (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | L-GN/YE | 6353 | Input Speed Signal | I | — |
| 2 | 0.75 | YE/D-BU | 4171 | Transmission Position Sensor A 9V Reference | I | — |

# B16 Backup Lamp Switch (L96+ZW9)



## Connector Part Information

Harness Type: Engine

OEM Connector: 12103584

Service Connector: 12085485

Description: 2-Way M Weather Pack Series (BK)

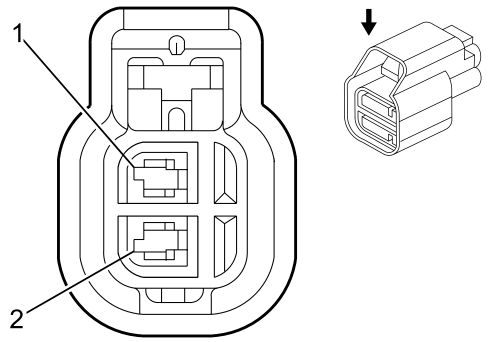
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-9 (OG) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B16 Backup Lamp Switch (L96+ZW9)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.75 | BK/WH | 451 | Signal Ground | I | — |
| B | 0.5 | L-GN/WH | 5007 | Reverse Switch Signal | I | — |

# B16 Backup Lamp Switch (LV1+(C42/C67))



## Connector Part Information

Harness Type: Engine

OEM Connector: 15383325

Service Connector: 89046838

Description: 2-Way F 1.5 Series (BK)

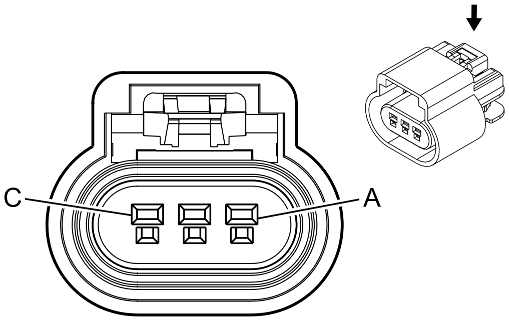
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B16 Backup Lamp Switch (LV1+(C42/C67))*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | BK/WH | 451 | Signal Ground | I | — |
| 2 | 0.5 | L-GN/WH | 5007 | Reverse Switch Signal | I | — |

## B18 Battery Current Sensor



### Connector Part Information

Harness Type: Engine

OEM Connector: 13519047

Service Connector: 13580871

Description: 3-Way F 150 GT Series, Sealed (BK)

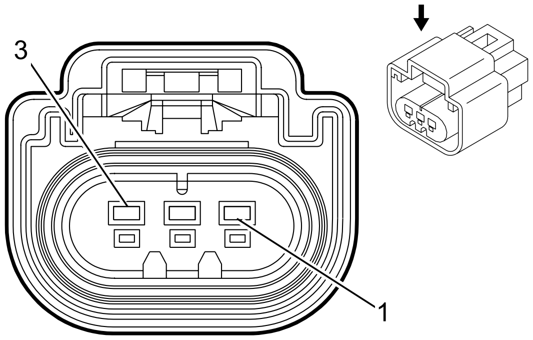
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B18 Battery Current Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | D-BU/VT | 5076 | Current Sensor Control | I | — |
| B | 0.5 | BK/VT | 5077 | Current Sensor Low Reference | I | — |
| C | 0.5 | WH/YE | 5075 | Current Sensor Signal | I | — |

## B19B Brake Booster Vacuum Sensor



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13511996

Service Connector: 13580873

Description: 3-Way F 150 GT Series, Sealed (GY)

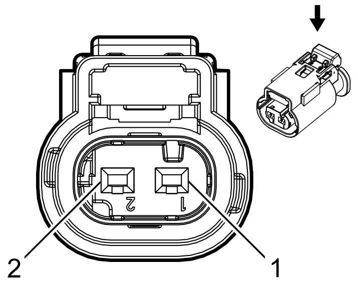
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B19B Brake Booster Vacuum Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/VT | 6030 | Brake Vacuum Sensor Signal | I | — |
| 2 | 0.5 | BK/YE | 6032 | Brake Vacuum Sensor Low Reference | I | — |
| 3 | 0.5 | YE/RD | 6031 | Brake Vacuum Sensor 5V Reference | I | — |

## B20 Brake Fluid Level Switch



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13735326

Service Connector: 13587326

Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

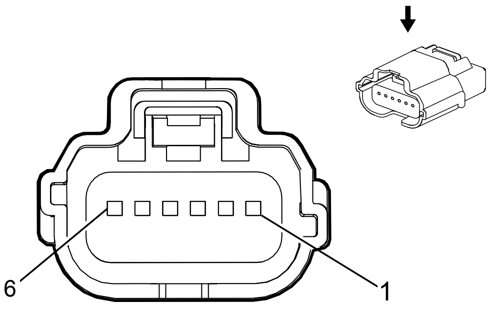
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B20 Brake Fluid Level Switch*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK | 2150 | Ground | I | 1500 |
|  | 0.75 | BK | 2150 | Ground | I | 2500/3500 |
| 2 | 0.5 | L-GN/GY | 333 | Brake Fluid Level Sensor Signal | I | — |

# B22 Brake Pedal Position Sensor



## Connector Part Information

Harness Type: Brake Clutch

OEM Connector: 13893502

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F 64 Series, Sealed (NA)

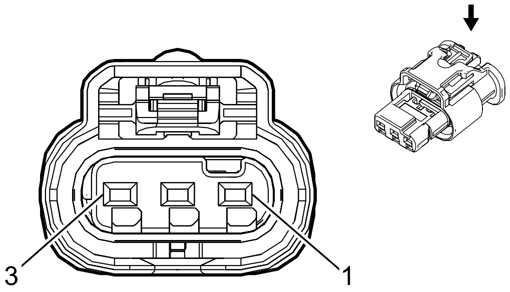
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B22 Brake Pedal Position Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/L-GN | 552 | Sensor Low Reference | I | — |
| 2 | 0.5 | GY/RD | 598 | 5V Reference | I | — |
| 3 | 0.5 | WH/L-GN | 526 | Stop Lamp Switch Signal | I | — |
| 4 | 0.5 | D-BU/YE | 5361 | Brake Apply Sensor Signal | I | — |
| 5 | 0.5 | BK/BN | 5360 | Brake Apply Sensor Low Reference | I | — |
| 6 | 0.5 | WH | 5359 | Brake Apply Sensor Control | I | — |

## B23 Camshaft Position Sensor (L5P)



### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 2098541-5

Service Connector: 19329387

Description: 3-Way F 1.2 MCP Series, Sealed (BN)

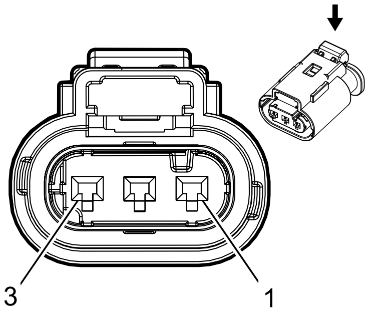
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B23 Camshaft Position Sensor (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/BU | 5300 | Camshaft Position Intake Sensor Control 1 | I | L5P |
| 2 | 0.5 | BK/GN | 5301 | Camshaft Position Intake Sensor Low Reference 1 | I | L5P |
| 3 | 0.5 | YE/VT | 5275 | Camshaft Position Intake Sensor 1 | I | L5P |

## B23 Camshaft Position Sensor (L83/L86/L8B)



### Connector Part Information

Harness Type: Camshaft Position Sensor Jumper

OEM Connector: 10010341

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

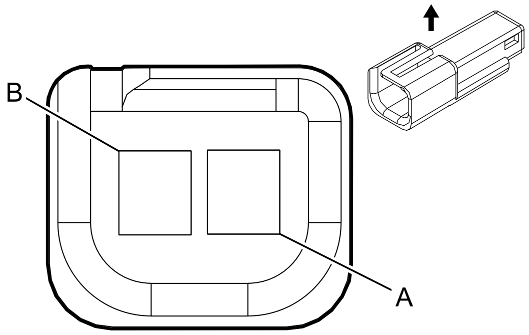
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B23 Camshaft Position Sensor (L83/L86/L8B)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/D-BU | 5300 | Camshaft Position Intake Sensor Control 1 | I | — |
| 2 | 0.5 | BK/L-GN | 5301 | Camshaft Position Intake Sensor Low Reference 1 | I | — |
| 3 | 0.5 | YE/VT | 5275 | Camshaft Position Intake Sensor 1 | I | — |

## B24 Cellular Phone Microphone



### Connector Part Information

Harness Type: Headliner

OEM Connector: 12047663

Service Connector: 13584278

Description: 2-Way M 150 Metri-Pack Series (BK)

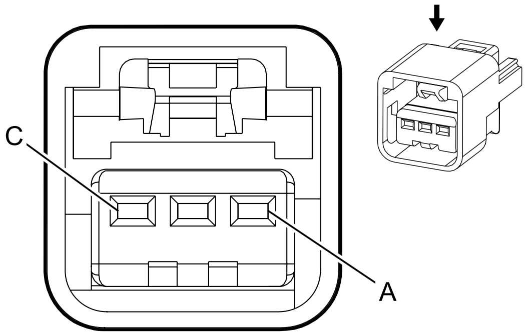
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B24 Cellular Phone Microphone*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.35 | BK/BN | 654 | Cellular Telephone Microphone Low Reference | I | — |
| B | 0.35 | D-BU | 655 | Cellular Telephone Microphone Signal | I | — |

## B25B Clutch Pedal Position Sensor



### Connector Part Information

Harness Type: Brake Clutch

OEM Connector: 15332132

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 150 GT Series (BK)

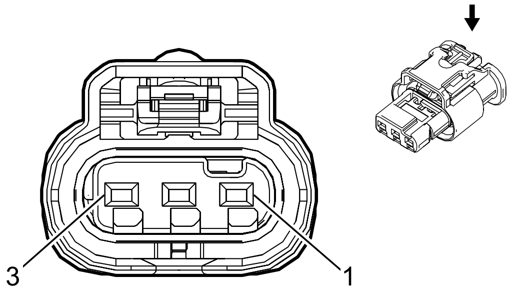
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B25B Clutch Pedal Position Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | GY/RD | 6109 | Clutch Apply Sensor 5V Reference | I | — |
| B | 0.5 | YE | 6111 | Clutch Apply Sensor Signal | I | — |
| C | 0.5 | BK/GY | 6110 | Clutch Apply Sensor Low Reference | I | — |

## B26 Crankshaft Position Sensor (L5P)



### Connector Part Information

Harness Type: Engine

OEM Connector: 2098541-5

Service Connector: 19329387

Description: 3-Way F 1.2 MCP Series, Sealed (BN)

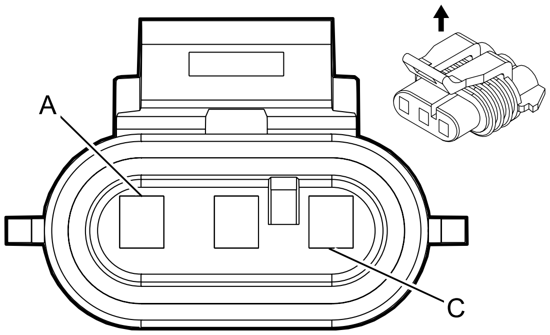
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B26 Crankshaft Position Sensor (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/BU | 6270 | Crankshaft 60X Sensor 5V Reference | I | L5P |
| 2 | 0.5 | BK/VT | 6272 | Crankshaft 60X Sensor Low Reference | I | L5P |
| 3 | 0.5 | GN | 6271 | Crankshaft 60X Sensor Signal | I | L5P |

## B26 Crankshaft Position Sensor (L96/LC8)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13838337

Service Connector: 19329936

Description: 3-Way F 150 Metri-Pack Series, Sealed (GY)

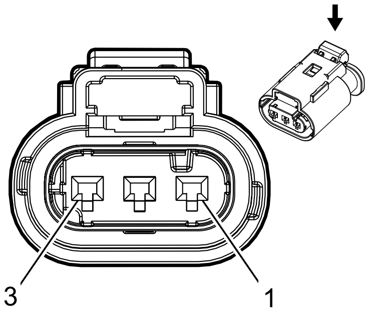
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B26 Crankshaft Position Sensor (L96/LC8)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | L-GN | 6271 | Crankshaft 60X Sensor Signal | I | — |
| B | 0.5 | BK/VT | 6272 | Crankshaft 60X Sensor Low Reference | I | — |
| C | 0.5 | VT/D-BU | 6270 | Crankshaft 60X Sensor 5V Reference | I | — |

## B26 Crankshaft Position Sensor (LV1/LV3)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13763990

Service Connector: 19299690

Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

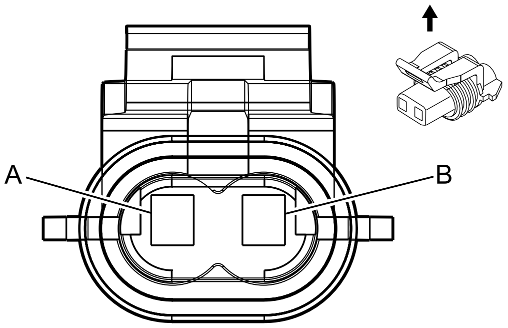
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B26 Crankshaft Position Sensor (LV1/LV3)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | L-GN | 6271 | Crankshaft 60X Sensor Signal | I | — |
| 2 | 0.5 | BK/VT | 6272 | Crankshaft 60X Sensor Low Reference | I | — |
| 3 | 0.5 | VT/D-BU | 6270 | Crankshaft 60X Sensor 5V Reference | I | — |

## B33 Engine Coolant Level Switch



## Connector Part Information

Harness Type: Engine

OEM Connector: 15324243

Service Connector: 15306302

Description: 2-Way F 150 Metri-Pack Series, Sealed (GY)

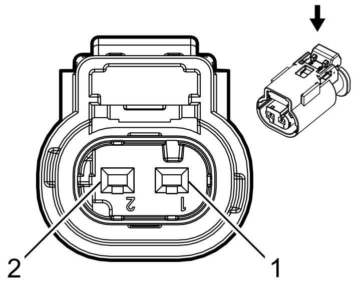
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B33 Engine Coolant Level Switch*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | D-BU/YE | 68 | Low Coolant Level Indicator Control | I | — |
| B | 0.75 | BK/WH | 451 | Signal Ground | I | — |

## B34 Engine Coolant Temperature Sensor (L5P)



### Connector Part Information

Harness Type: Engine

OEM Connector: 10010337

Service Connector: 13587326

Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

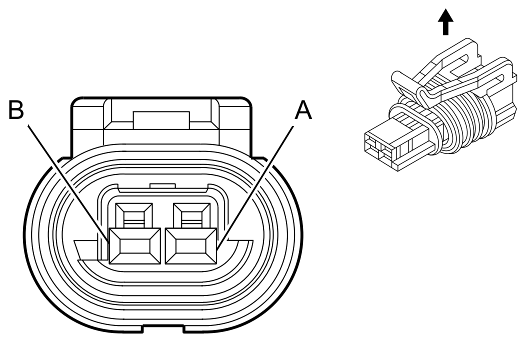
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B34 Engine Coolant Temperature Sensor (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/BN | 2761 | Coolant Temperature Sensor Low Reference | I | L5P |
| 2 | 0.5 | BU | 410 | Engine Coolant Temperature Sensor Signal | I | L5P |

## B34 Engine Coolant Temperature Sensor (L96/LC8)



### Connector Part Information

Harness Type: Engine

OEM Connector: 15449028

Service Connector: 88987993

Description: 2-Way F 150 GT Series, Sealed (BK)

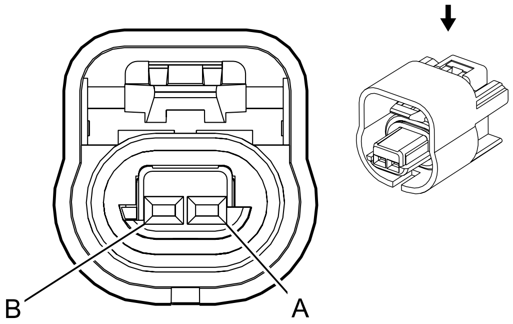
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B34 Engine Coolant Temperature Sensor (L96/LC8)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | BK/BN | 2761 | Coolant Temperature Sensor Low Reference | I | — |
| B | 0.5 | D-BU | 410 | Engine Coolant Temperature Sensor Signal | I | — |

## B34 Engine Coolant Temperature Sensor (LV1/LV3)



### Connector Part Information

Harness Type: Engine

OEM Connector: 15355317

Service Connector: 19178093

Description: 2-Way F 150 GT Series, Sealed (BK)

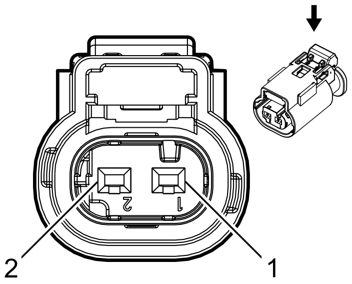
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B34 Engine Coolant Temperature Sensor (LV1/LV3)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | BK/BN | 2761 | Coolant Temperature Sensor Low Reference | I | — |
| B | 0.5 | D-BU | 410 | Engine Coolant Temperature Sensor Signal | I | — |

## B35 Engine Oil Level Switch (L5P)



### Connector Part Information

Harness Type: Engine

OEM Connector: 10010337

Service Connector: 13587326

Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

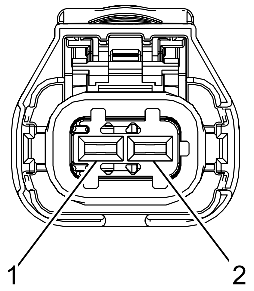
### *Terminal Part Information*

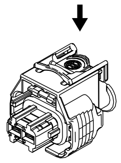
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B35 Engine Oil Level Switch (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/WH | 251 | Signal Ground | I | L5P |
| 2 | 0.5 | BN/GN | 1174 | Oil Level Switch Signal | I | L5P |

# B35 Engine Oil Level Switch (LV1/LV3)





## Connector Part Information

Harness Type: Engine

OEM Connector: 13930085

Service Connector: 13384371

Description: 2-Way F 2.8 Series, Sealed (BK)

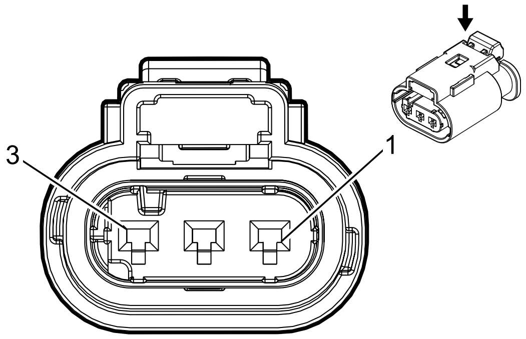
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B35 Engine Oil Level Switch (LV1/LV3)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/WH | 451 | Signal Ground | I | — |
| 2 | 0.5 | BN/L-GN | 1174 | Oil Level Switch Signal | I | — |

## B37B Engine Oil Pressure Sensor (L5P)



### Connector Part Information

Harness Type: Engine

OEM Connector: 10010344

Service Connector: 19301717

Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

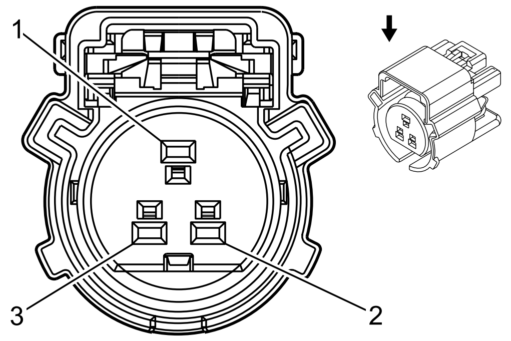
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B37B Engine Oil Pressure Sensor (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/BN | 331 | Oil Pressure Sensor Signal | I | L5P |
| 2 | 0.5 | BK/VT | 2755 | Oil Pressure Sensor Low Reference | I | L5P |
| 3 | 0.5 | WH/RD | 2705 | Oil Pressure Sensor 5V Reference | I | L5P |

## B37B Engine Oil Pressure Sensor (L96/LC8)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13589761

Service Connector: 13501882

Description: 3-Way F 150 GT Series, Sealed (BK)

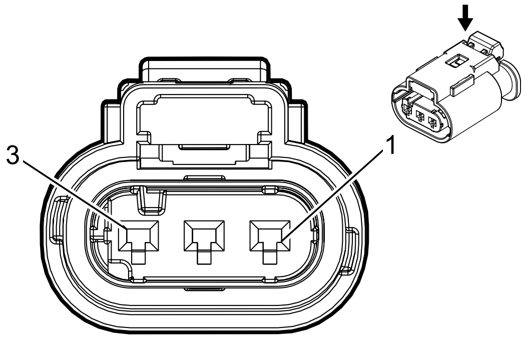
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B37B Engine Oil Pressure Sensor (L96/LC8)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/BN | 331 | Oil Pressure Sensor Signal | I | — |
| 2 | 0.5 | WH/RD | 2705 | Oil Pressure Sensor 5V Reference | I | — |
| 3 | 0.5 | BK/VT | 2755 | Oil Pressure Sensor Low Reference | I | — |

## B37B Engine Oil Pressure Sensor (LV1/LV3)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13889776

Service Connector: 19301717

Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

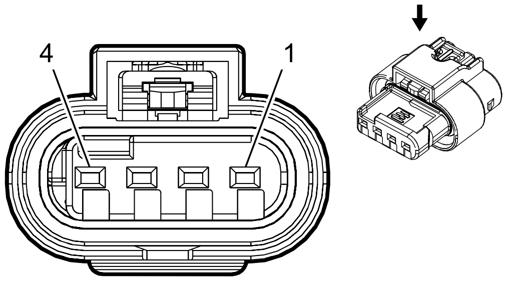
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B37B Engine Oil Pressure Sensor (LV1/LV3)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/BN | 331 | Oil Pressure Sensor Signal | I | — |
| 2 | 0.5 | BK/VT | 2755 | Oil Pressure Sensor Low Reference | I | — |
| 3 | 0.5 | WH/RD | 2705 | Oil Pressure Sensor 5V Reference | I | — |

## B47B Fuel Rail Pressure Sensor (L5P)



### Connector Part Information

Harness Type: Engine

OEM Connector: 1-1456426-5

Service Connector: 19300397

Description: 4-Way F 1.2 MCP Series, Sealed (BK)

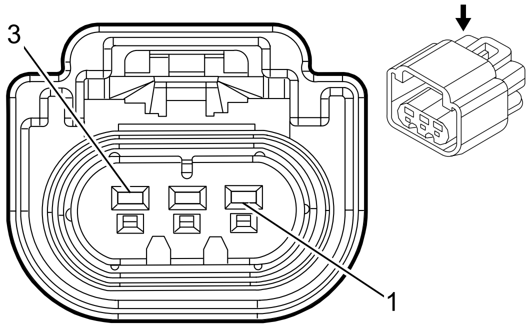
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B47B Fuel Rail Pressure Sensor (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BN/RD | 2917 | Fuel Rail Pressure Sensor 5V Reference | I | L5P |
| 2 | 0.5 | BN/YE | 2161 | Fuel Rail Pressure Sensor 2 Signal | I | L5P |
| 3 | 0.5 | BK/GN | 2919 | Fuel Rail Pressure Sensor Low Reference | I | L5P |
| 4 | 0.5 | BU/WH | 2918 | Fuel Rail Pressure Sensor Signal | I | L5P |

## B47 Fuel Pressure Sensor



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13511131

Service Connector: 19168035

Description: 3-Way F 150 GT Series, Sealed (BK)

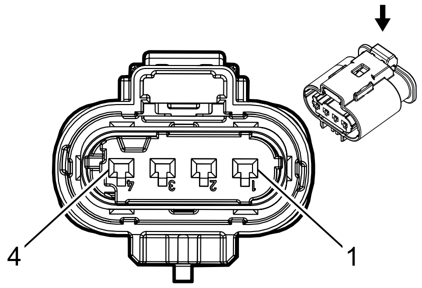
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B47 Fuel Pressure Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | D-BU/WH | 7446 | Fuel Line Pressure Sensor Signal | I | — |
| 2 | 0.5 | BK/YE | 7447 | Fuel Line Pressure Sensor Low Reference | I | — |
| 3 | 0.5 | BN/RD | 7445 | Fuel Line Pressure Sensor 5V Reference | I | — |

## B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (L96)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13815341

Service Connector: 13587299

Description: 4-Way F 1.2 Multilock Series, Sealed (BK)

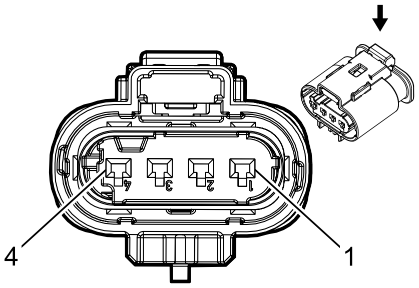
### Terminal Part Information

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (L96)

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/WH | 3113 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1 | I | — |
| 2 | 0.75 | VT/D-BU | 5293 | Powertrain Main Relay Fused Supply 4 | I | — |
| 3 | 0.5 | WH/BK | 3111 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 1 | I | — |
| 4 | 0.5 | VT/GY | 3110 | Heated Oxygen Sensor High Signal Bank 1 Sensor 1 | I | — |

## B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (L96/LC8)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13815341

Service Connector: 13587299

Description: 4-Way F 1.2 Multilock Series, Sealed (BK)

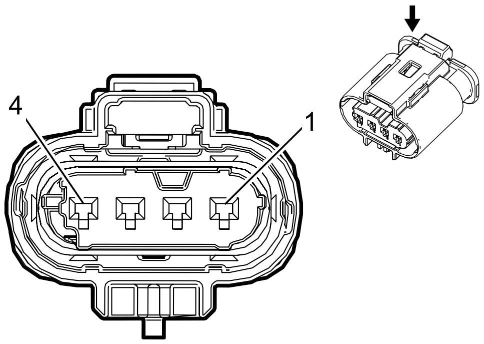
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (L96/LC8)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/WH | 3113 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1 | I | — |
| 2 | 0.75 | VT/D-BU | 5293 | Powertrain Main Relay Fused Supply 4 | I | — |
| 3 | 0.5 | WH/BK | 3111 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 1 | I | — |
| 4 | 0.5 | VT/GY | 3110 | Heated Oxygen Sensor High Signal Bank 1 Sensor 1 | I | — |

## B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LV1)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13869004

Service Connector: 19301716

Description: 4-Way F 1.2 Multilock Series, Sealed (D-GY)

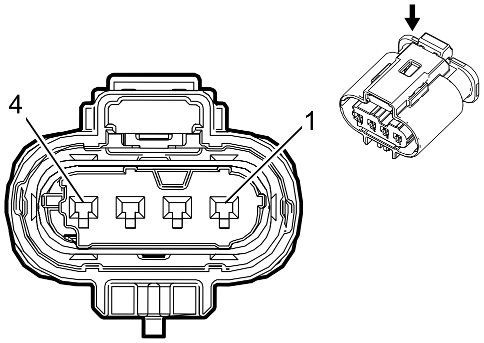
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LV1)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/WH | 3113 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1 | I | — |
| 2 | 0.5 | VT/D-BU | 5293 | Powertrain Main Relay Fused Supply 4 | I | — |
| 3 | 0.5 | WH/BK | 3111 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 1 | I | — |
| 4 | 0.5 | VT/GY | 3110 | Heated Oxygen Sensor High Signal Bank 1 Sensor 1 | I | — |

## B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LV3)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13869004

Service Connector: 19301716

Description: 4-Way F 1.2 Multilock Series, Sealed (D-GY)

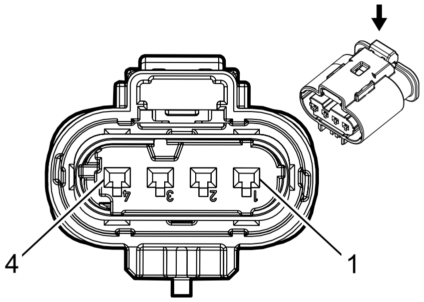
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B52C Heated Oxygen Sensor - Bank 1 Sensor 1 (LV3)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/WH | 3113 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1 | I | — |
| 2 | 0.5 | VT/D-BU | 5293 | Powertrain Main Relay Fused Supply 4 | I | — |
| 3 | 0.5 | WH/BK | 3111 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 1 | I | — |
| 4 | 0.5 | VT/GY | 3110 | Heated Oxygen Sensor High Signal Bank 1 Sensor 1 | I | — |

## B52D Heated Oxygen Sensor - Bank 1 Sensor 2



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13815348

Service Connector: 13587298

Description: 4-Way F 1.2 Multilock Series, Sealed (L-GY)

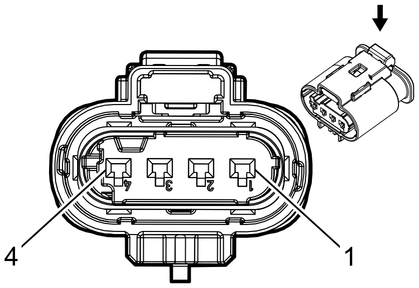
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B52D Heated Oxygen Sensor - Bank 1 Sensor 2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/WH | 3122 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2 | I | — |
| 2 | 0.5 | VT/D-BU | 5294 | Powertrain Main Relay Fused Supply 5 | I | — |
| 3 | 0.5 | WH/YE | 3121 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 2 | I | — |
| 4 | 0.5 | VT/BU | 3120 | Heated Oxygen Sensor High Signal Bank 1 Sensor 2 | I | — |

# B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (L96/LC8)



## Connector Part Information

Harness Type: Engine

OEM Connector: 13815341

Service Connector: 13587299

Description: 4-Way F 1.2 Multilock Series, Sealed (BK)

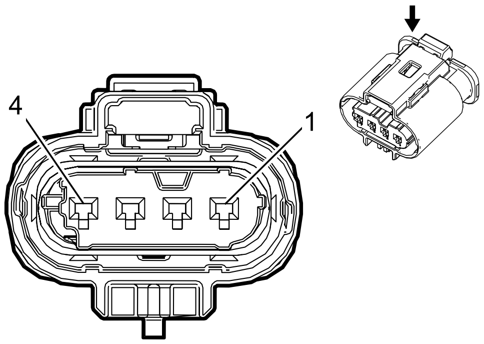
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (L96/LC8)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | L-GN/YE | 3212 | Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1 | I | — |
| 2 | 0.75 | VT/D-BU | 5293 | Powertrain Main Relay Fused Supply 4 | I | — |
| 3 | 0.5 | YE/WH | 3211 | Heated Oxygen Sensor Low Signal Bank 2 Sensor 1 | I | — |
| 4 | 0.5 | VT/WH | 3210 | Heated Oxygen Sensor High Signal Bank 2 Sensor 1 | I | — |

## B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (LV1/LV3)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13869004

Service Connector: 19301716

Description: 4-Way F 1.2 Multilock Series, Sealed (D-GY)

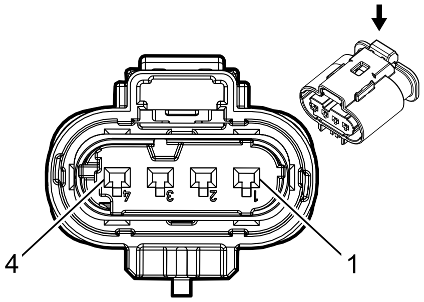
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B52E Heated Oxygen Sensor - Bank 2 Sensor 1 (LV1/LV3)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | L-GN/YE | 3212 | Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1 | I | — |
| 2 | 0.5 | VT/D-BU | 5293 | Powertrain Main Relay Fused Supply 4 | I | — |
| 3 | 0.5 | YE/WH | 3211 | Heated Oxygen Sensor Low Signal Bank 2 Sensor 1 | I | — |
| 4 | 0.5 | VT/WH | 3210 | Heated Oxygen Sensor High Signal Bank 2 Sensor 1 | I | — |

## B52F Heated Oxygen Sensor - Bank 2 Sensor 2



### Connector Part Information

Harness Type: Engine

OEM Connector: 13815348

Service Connector: 13587298

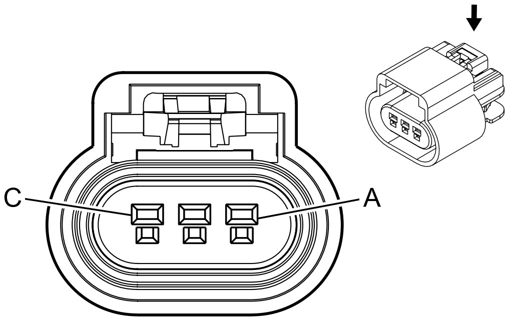
Description: 4-Way F 1.2 Multilock Series, Sealed (L-GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B52F Heated Oxygen Sensor - Bank 2 Sensor 2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | WH/BN | 3223 | Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 2 | I | — |
| 2 | 0.5 | VT/D-BU | 5294 | Powertrain Main Relay Fused Supply 5 | I | — |
| 3 | 0.5 | YE/D-BU | 3221 | Heated Oxygen Sensor Low Signal Bank 2 Sensor 2 | I | — |
| 4 | 0.5 | VT/L-GN | 3220 | Heated Oxygen Sensor High Signal Bank 2 Sensor 2 | I | — |



## Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13519047

Service Connector: 13580871

Description: 3-Way F 150 GT Series, Sealed (BK)

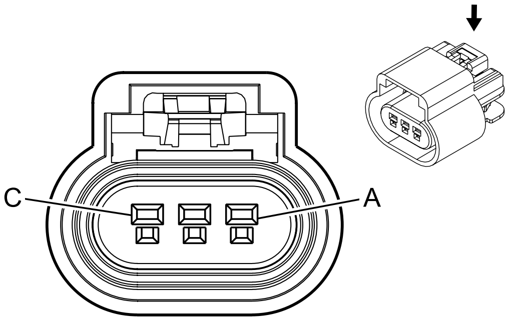
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B55 Hood Ajar Switch (L83/L86/LV3)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | YE | 5530 | Hood Open Switch Signal | I | — |
| B | 0.5 | BN/L-GN | 109 | Hood Ajar Switch Signal | I | — |
| C | 1 | BK | 250 | Ground | I | — |

## B55 Hood Ajar Switch (HP5)



### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13519047

Service Connector: 13580871

Description: 3-Way F 150 GT Series, Sealed (BK)

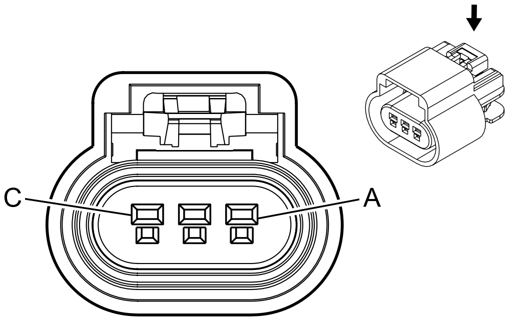
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B55 Hood Ajar Switch (HP5)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | YE | 5530 | Hood Open Switch Signal | I | — |
| B | 0.5 | BN/L-GN | 109 | Hood Ajar Switch Signal | I | — |
| C | 1 | BK/YE | 4082 | Low Reference | I | — |

# B55 Hood Ajar Switch (L96/LC8/L5P)



## Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13519047

Service Connector: 13580871

Description: 3-Way F 150 GT Series, Sealed (BK)

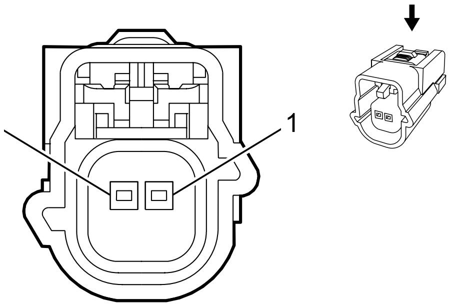
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B55 Hood Ajar Switch (L96/LC8/L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | — | — | — | Not Occupied | — | — |
| B | 0.5 | BN/L-GN | 109 | Hood Ajar Switch Signal | I | — |
| C | 1 | BK | 250 | Ground | I | — |

# B59L Front Impact Sensor - Left



## Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13593078

Service Connector: 13577629

Description: 2-Way F 0.64 Series, Sealed (L-GY)

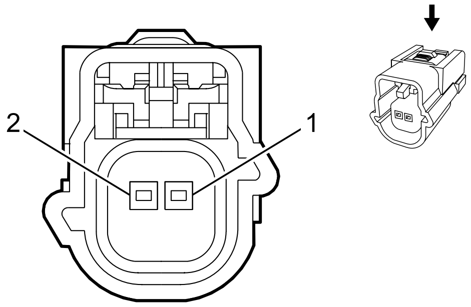
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B59L Front Impact Sensor - Left*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/YE | 354 | Left Front Discriminating Sensor Signal | I | — |
| 2 | 0.5 | BK/OG | 5045 | Left Front Discriminating Sensor Low Reference | I | — |

# B59R Front Impact Sensor - Right



## Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13593078

Service Connector: 13577629

Description: 2-Way F 0.64 Series, Sealed (L-GY)

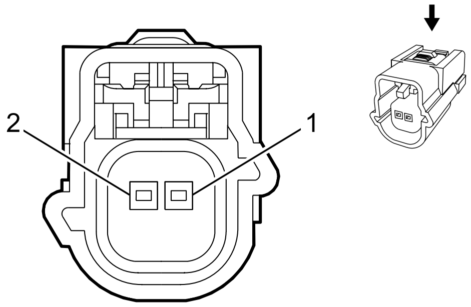
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B59R Front Impact Sensor - Right*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/L-GN | 1409 | Right Front Discriminating Sensor Signal | I | — |
| 2 | 0.5 | BK/OG | 5600 | Right Front Discriminating Sensor Low Reference | I | — |

## B59 Front Impact Sensor



### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13593078

Service Connector: 13577629

Description: 2-Way F 0.64 Series, Sealed (L-GY)

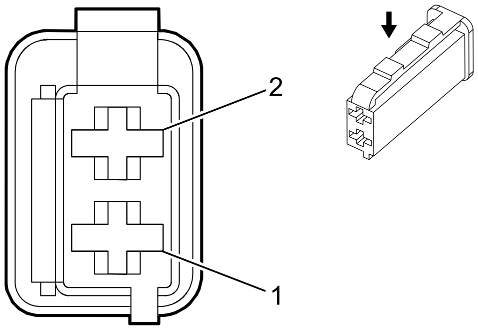
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B59 Front Impact Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/GY | 6618 | Middle Front Discriminating Sensor Signal | I | — |
| 2 | 0.5 | BK/OG | 6619 | Middle Front Discriminating Sensor Low Reference | I | — |

## B60 Passenger Presence Sensor



### Connector Part Information

Harness Type: Body

OEM Connector: 13670097

Service Connector: 13580951

Description: 2-Way F 1.6 Timer Series (BK)

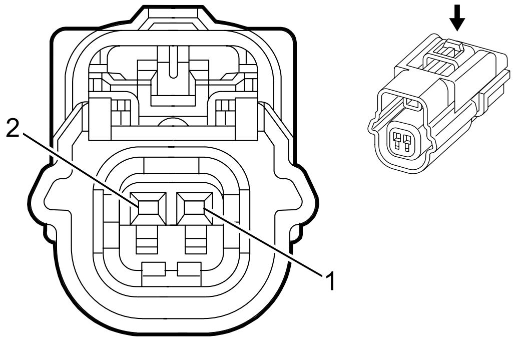
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B60 Passenger Presence Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | D-BU/RD | 5612 | Passenger Seat Belt Tension Sensor 5V Reference | I | — |
| 2 | 0.35 | VT/OG | 5611 | Passenger Seat Belt Tension Sensor Signal | I | — |

## B62D Seat Position Sensor - Driver



### Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 54390239

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 0.64 Kaizen Series, Sealed (BK)

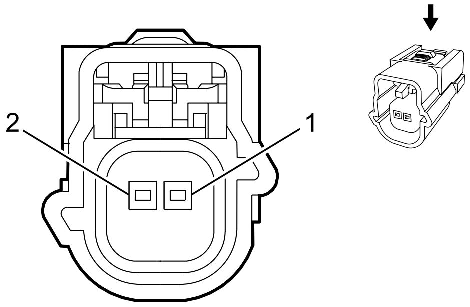
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B62D Seat Position Sensor - Driver*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | BK/OG | 1363 | Driver Seat Belt Switch Low Reference | I | — |
| 2 | 0.35 | OG/L-GN | 5055 | Driver Seat Position Switch Signal | I | — |

## B63LF Side Impact Sensor - Left Front



### Connector Part Information

Harness Type: Driver Door

OEM Connector: 13593078

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 0.64 Series, Sealed (L-GY)

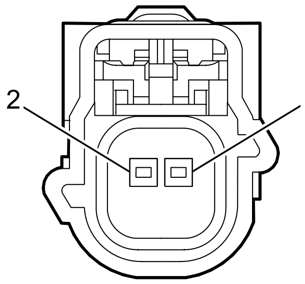
### *Terminal Part Information*

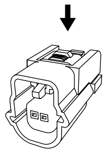
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B63LF Side Impact Sensor - Left Front*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/L-GN | 2132 | Left Front Side Impact Sensing Module Signal | I | — |
| 2 | 0.5 | BK/OG | 6628 | Left Front Side Impact Sensing Module Low Reference | I | — |

## B63LR Side Impact Sensor - Left Rear





### Connector Part Information

Harness Type: Left Rear Door

OEM Connector: 13610095

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 0.64 Series, Sealed (D-GY)

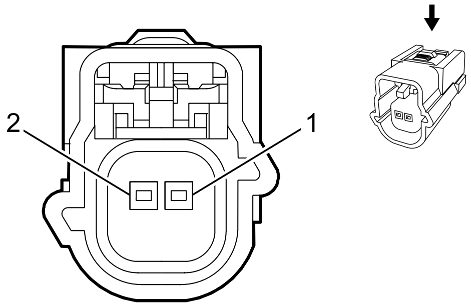
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B63LR Side Impact Sensor - Left Rear*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/D-BU | 6620 | Left Middle Side Impact Sensing Module Signal | I | — |
| 2 | 0.5 | BK/OG | 6621 | Left Middle Side Impact Sensing Module Low Reference | I | — |

## B63RF Side Impact Sensor - Right Front



### Connector Part Information

Harness Type: Passenger Door

OEM Connector: 13593078

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 0.64 Series, Sealed (L-GY)

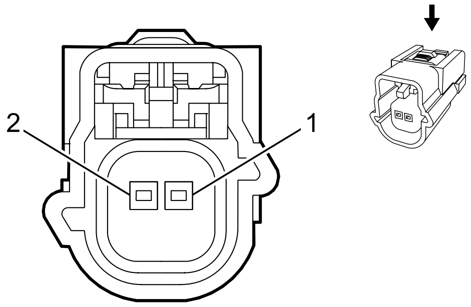
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B63RF Side Impact Sensor - Right Front*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/L-GN | 2134 | Right Front Side Impact Sensing Module Signal | I | — |
| 2 | 0.5 | BK/OG | 6629 | Right Front Side Impact Sensing Module Low Reference | I | — |

## B63RR Side Impact Sensor - Right Rear



### Connector Part Information

Harness Type: Right Rear Door

OEM Connector: 13610095

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 0.64 Series, Sealed (D-GY)

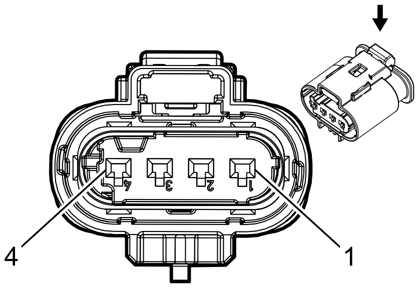
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B63RR Side Impact Sensor - Right Rear*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/VT | 6624 | Right Middle Side Impact Sensing Module Signal | I | — |
| 2 | 0.5 | BK/OG | 6625 | Right Middle Side Impact Sensing Module Low Reference | I | — |

# B65 Intake Manifold Pressure and Air Temperature Sensor (L5P)



## Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 10010346

Service Connector: 13587299

Description: 4-Way F 1.2 Multilock Series, Sealed (BK)

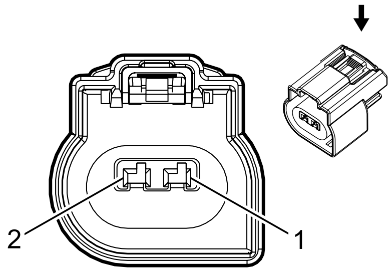
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B65 Intake Manifold Pressure and Air Temperature Sensor (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BN | 7348 | Induction Air Temperature Sensor 2 Signal | I | L5P |
| 2 | 0.5 | GY/RD | 2704 | Manifold Absolute Pressure Sensor 5V Reference | I | L5P |
| 3 | 0.5 | BK/GN | 469 | Manifold Absolute Pressure Sensor Low Reference | I | L5P |
| 4 | 0.5 | GN/WH | 432 | Manifold Absolute Pressure Sensor Signal | I | L5P |

# B68A Knock Sensor 1



## Connector Part Information

Harness Type: Engine

OEM Connector: 13814755

Service Connector: 19301207

Description: 2-Way F 150 MX Series, Sealed (BK)

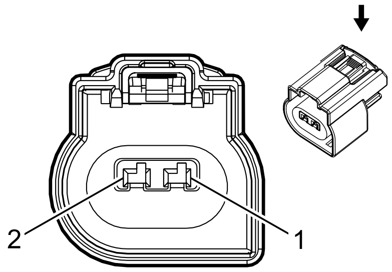
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B68A Knock Sensor 1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | VT/GY | 496 | Knock Sensor Signal 1 | I | — |
| 2 | 0.75 | BK/YE | 1716 | Knock Sensor Low Reference 1 | I | — |

## B68B Knock Sensor 2



## Connector Part Information

Harness Type: Engine

OEM Connector: 13814755

Service Connector: 19301207

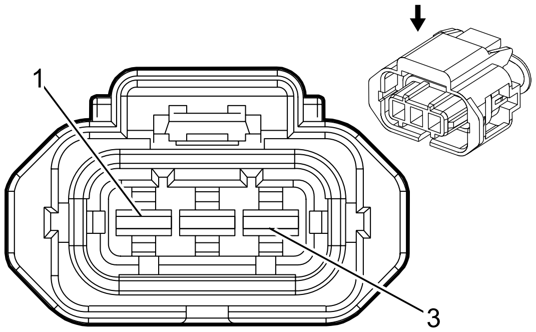
Description: 2-Way F 150 MX Series, Sealed (BK)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B68B Knock Sensor 2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | WH/GY | 1876 | Knock Sensor Signal 2 | I | — |
| 2 | 0.75 | BK/GY | 2303 | Knock Sensor Low Reference 2 | I | — |



## Connector Part Information

Harness Type: Engine

OEM Connector: 13639747

Service Connector: 19181248

Description: 3-Way F 2.8 Junior Power Timer Series, Sealed (BK)

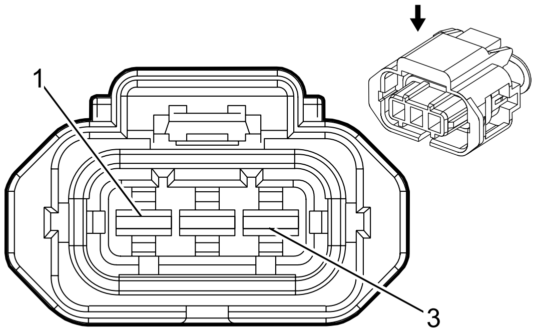
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B74 Manifold Absolute Pressure Sensor (L96/LC8)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/RD | 2704 | Manifold Absolute Pressure Sensor 5V Reference | I | — |
| 2 | 0.5 | BK/L-GN | 469 | Manifold Absolute Pressure Sensor Low Reference | I | — |
| 3 | 0.5 | L-GN/WH | 432 | Manifold Absolute Pressure Sensor Signal | I | — |

## B74 Manifold Absolute Pressure Sensor (LV3+(NQG/NQH))



### Connector Part Information

Harness Type: Engine

OEM Connector: 15397338

Service Connector: 13585845

Description: 3-Way F 2.8 Junior Power Timer Series, Sealed (BK)

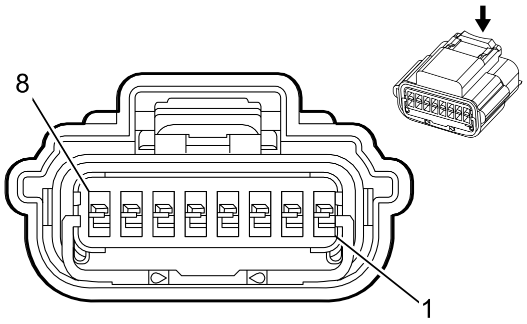
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B74 Manifold Absolute Pressure Sensor (LV3+(NQG/NQH))*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/RD | 2704 | Manifold Absolute Pressure Sensor 5V Reference | I | — |
| 2 | 0.5 | BK/L-GN | 469 | Manifold Absolute Pressure Sensor Low Reference | I | — |
| 3 | 0.5 | L-GN/WH | 432 | Manifold Absolute Pressure Sensor Signal | I | — |

# B75C Multifunction Intake Air Sensor (L5P)



## Connector Part Information

Harness Type: Engine

OEM Connector: 13774439

Service Connector: 13583440

Description: 8-Way F 0.64 Series, Sealed (BK)

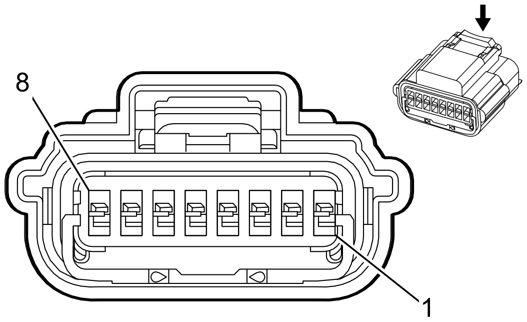
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B75C Multifunction Intake Air Sensor (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | WH/D-BU | 6289 | Induction Air Temperature Sensor Signal | I | — |
| 2 | 0.5 | WH/RD | 3201 | Throttle Inlet Absolute Pressure Sensor 5V Reference | I | — |
| 3 | 0.5 | BK/VT | 2760 | Intake Air Temperature Sensor Low Reference | I | — |
| 4 | 0.5 | BN/L-GN | 5266 | Ambient Air Pressure Sensor Signal | I | — |
| 5 | 0.5 | VT/D-BU | 5294 | Powertrain Main Relay Fused Supply 5 | I | — |
| 6 | 0.5 | L-GN/WH | 492 | Mass Air Flow Sensor Signal | I | — |
| 7 | 0.75 | BK/WH | 451 | Signal Ground | I | — |
| 8 | 0.5 | BN/GY | 4008 | Humidity Sensor Signal | I | — |

## B75C Multifunction Intake Air Sensor (L96/LC8)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13774439

Service Connector: 13583440

Description: 8-Way F 0.64 Series, Sealed (BK)

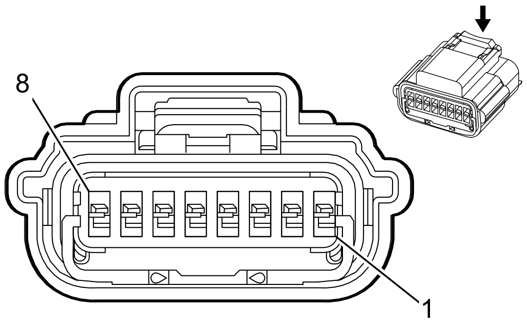
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B75C Multifunction Intake Air Sensor (L96/LC8)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | WH/D-BU | 6289 | Induction Air Temperature Sensor Signal | I | — |
| 2 | 0.5 | WH/RD | 3201 | Throttle Inlet Absolute Pressure Sensor 5V Reference | I | — |
| 3 | 0.5 | BK/VT | 2760 | Intake Air Temperature Sensor Low Reference | I | — |
| 4 | 0.5 | YE/WH | 3200 | Throttle Inlet Absolute Pressure Sensor Signal | I | — |
| 5 | 0.5 | VT/D-BU | 5294 | Powertrain Main Relay Fused Supply 5 | I | — |
| 6 | 0.5 | L-GN/WH | 492 | Mass Air Flow Sensor Signal | I | — |
| 7 | 0.75 | BK/WH | 451 | Signal Ground | I | — |
| 8 | 0.5 | GY/D-BU | 7564 | Humidity Sensor Signal | I | — |

## B75C Multifunction Intake Air Sensor (LV1/LV3)



## Connector Part Information

Harness Type: Engine

OEM Connector: 13774439

Service Connector: 13583440

Description: 8-Way F 0.64 Series, Sealed (BK)

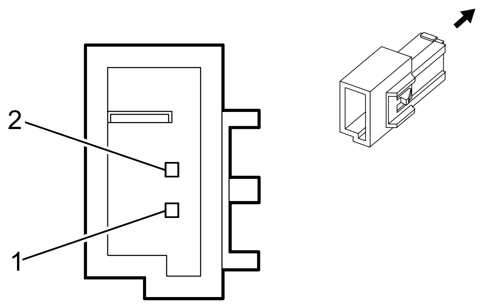
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B75C Multifunction Intake Air Sensor (LV1/LV3)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | WH/D-BU | 6289 | Induction Air Temperature Sensor Signal | I | — |
| 2 | 0.5 | WH/RD | 3201 | Throttle Inlet Absolute Pressure Sensor 5V Reference | I | — |
| 3 | 0.5 | WH/YE | 3202 | Throttle Inlet Absolute Pressure Sensor Low Reference | I | — |
| 4 | 0.5 | YE/WH | 3200 | Throttle Inlet Absolute Pressure Sensor Signal | I | — |
| 5 | 0.5 | VT/D-BU | 5294 | Powertrain Main Relay Fused Supply 5 | I | — |
| 6 | 0.5 | L-GN/WH | 492 | Mass Air Flow Sensor Signal | I | — |
| 7 | 0.75 | BK/WH | 451 | Signal Ground | I | — |
| 8 | 0.5 | GY/D-BU | 7564 | Humidity Sensor Signal | I | — |

## B77LF Radio Volume Compensator Interior Noise Microphone - Left Front



### Connector Part Information

Harness Type: Headliner

OEM Connector: 13676029

Service Connector: 19260825

Description: 2-Way M 0.64 Series (BK)

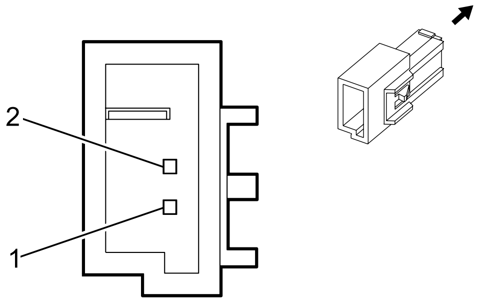
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-65B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B77LF Radio Volume Compensator Interior Noise Microphone - Left Front*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | L-GN/BK | 3008 | Noise Reduction Microphone 1 Low Reference | I | — |
| 2 | 0.35 | L-GN/WH | 3005 | Noise Reduction Microphone 1 Signal | I | — |

## B77R Radio Volume Compensator Interior Noise Microphone - Rear



### Connector Part Information

Harness Type: Headliner

OEM Connector: 13676029

Service Connector: 19260825

Description: 2-Way M 0.64 Series (BK)

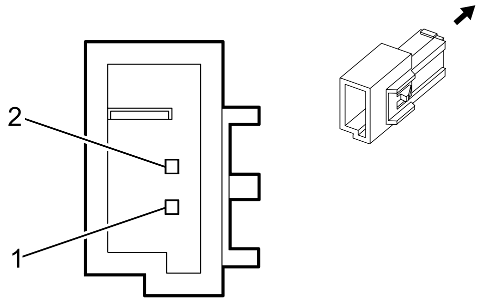
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-65B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B77R Radio Volume Compensator Interior Noise Microphone - Rear*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | GY/BN | 3010 | Noise Reduction Microphone 3 Low Reference | I | — |
| 2 | 0.35 | GY/D-BU | 3007 | Noise Reduction Microphone 3 Signal | I | — |

# B77RF Radio Volume Compensator Interior Noise Microphone - Right Front



## Connector Part Information

Harness Type: Headliner

OEM Connector: 13676029

Service Connector: 19260825

Description: 2-Way M 0.64 Series (BK)

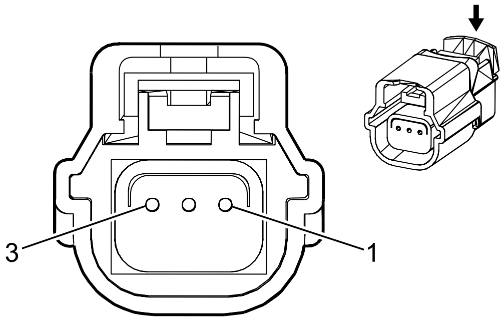
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-65B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B77RF Radio Volume Compensator Interior Noise Microphone - Right Front*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | D-BU/BK | 3009 | Noise Reduction Microphone 2 Low Reference | I | — |
| 2 | 0.35 | D-BU/YE | 3006 | Noise Reduction Microphone 2 Signal | I | — |

# B78E Rear Object Sensor - Left Middle



## Connector Part Information

Harness Type: Rear Bumper

OEM Connector: 13512481

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 0.64 Series, Sealed (BK)

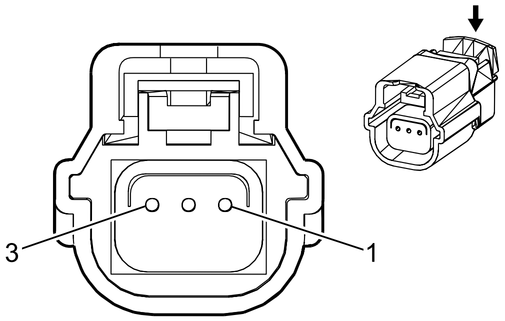
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B78E Rear Object Sensor - Left Middle*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BN/WH | 2374 | Object Sensor Control | I | — |
| 2 | 0.5 | YE/D-BU | 2376 | Left Rear Middle Object Sensor Signal | I | — |
| 3 | 0.5 | BK/GY | 2379 | Object Sensor Low Reference | I | — |

## B78F Rear Object Sensor - Right Middle



### Connector Part Information

Harness Type: Rear Bumper

OEM Connector: 13512481

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 0.64 Series, Sealed (BK)

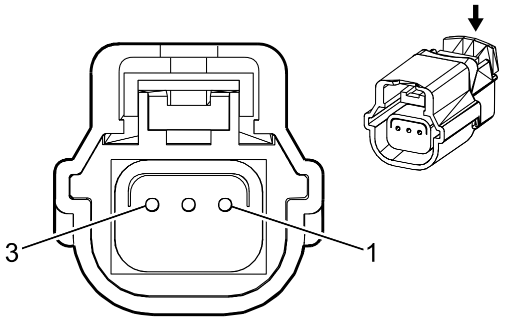
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B78F Rear Object Sensor - Right Middle*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BN/WH | 2374 | Object Sensor Control | I | — |
| 2 | 0.5 | YE/WH | 2377 | Right Rear Middle Object Sensor Signal | I | — |
| 3 | 0.5 | BK/GY | 2379 | Object Sensor Low Reference | I | — |

# B78G Rear Object Sensor - Left Outer



## Connector Part Information

Harness Type: Rear Bumper

OEM Connector: 13512481

Service Connector: Service by Harness - See Part Catalog

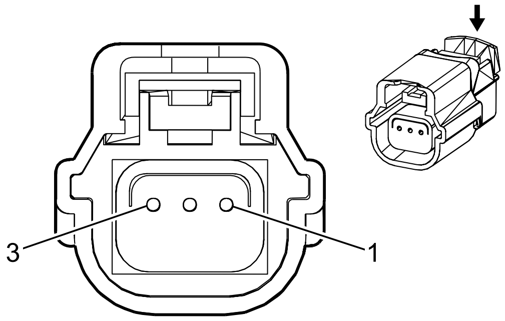
Description: 3-Way F 0.64 Series, Sealed (BK)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B78G Rear Object Sensor - Left Outer*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BN/WH | 2374 | Object Sensor Control | I | — |
| 2 | 0.5 | YE | 2375 | Left Rear Corner Object Sensor Signal | I | — |
| 3 | 0.5 | BK/GY | 2379 | Object Sensor Low Reference | I | — |



## Connector Part Information

Harness Type: Rear Bumper

OEM Connector: 13512481

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 0.64 Series, Sealed (BK)

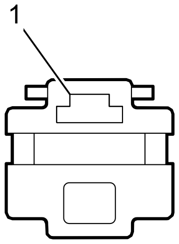
## *Terminal Part Information*

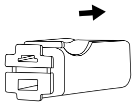
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B78H Rear Object Sensor - Right Outer*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BN/WH | 2374 | Object Sensor Control | I | — |
| 2 | 0.5 | YE/VT | 2378 | Right Rear Corner Object Sensor Signal | I | — |
| 3 | 0.5 | BK/GY | 2379 | Object Sensor Low Reference | I | — |

## B80 Park Brake Switch





### Connector Part Information

Harness Type: Body

OEM Connector: 13511619

Service Connector: 88988465

Description: 1-Way F 250 Series (BK)

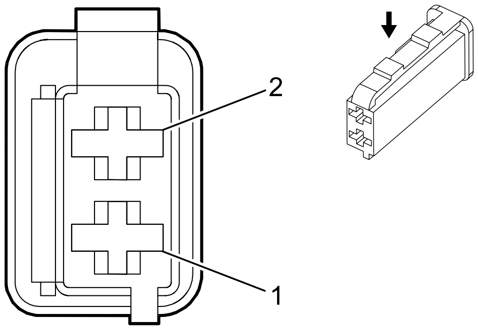
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-42 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B80 Park Brake Switch*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 1 | D-BU/VT | 1134 | Park Brake Switch Signal | I | — |

# B88D Seat Belt Switch - Driver



## Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 1563189-1

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.6 Timer Series (BK)

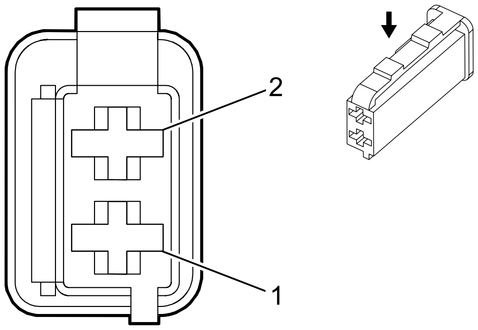
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B88D Seat Belt Switch - Driver*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | BK/OG | 1363 | Driver Seat Belt Switch Low Reference | I | — |
| 2 | 0.35 | OG/BN | 238 | Driver Seat Belt Switch Signal | I | — |

## B88P Seat Belt Switch - Passenger



### Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 1563189-1

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.6 Timer Series (BK)

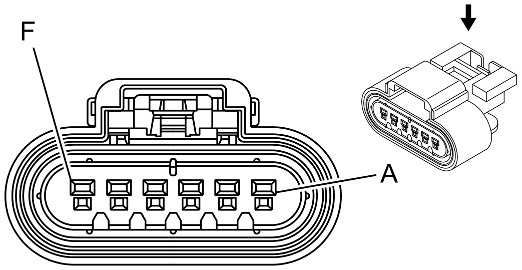
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B88P Seat Belt Switch - Passenger*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | BK/OG | 1361 | Passenger Seat Belt Switch Low Reference | I | — |
| 2 | 0.35 | OG/VT | 1362 | Passenger Seat Belt Switch Signal | I | — |

## B107 Accelerator Pedal Position Sensor (E29)



### Connector Part Information

Harness Type: Brake Clutch

OEM Connector: 15326830

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F 150 GT Series, Sealed (BK)

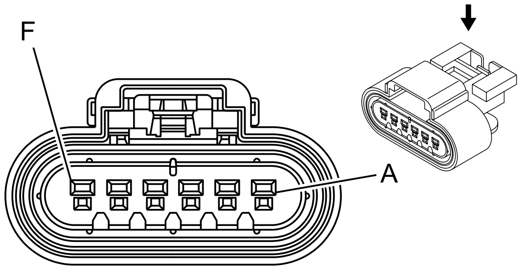
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B107 Accelerator Pedal Position Sensor (E29)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.35 | BK/VT | 1272 | Accelerator Pedal Position Low Reference 2 | I | — |
| B | 0.35 | L-GN/WH | 1162 | Accelerator Pedal Position Signal 2 | I | — |
| C | 0.35 | BN/RD | 1274 | Accelerator Pedal Position 5V Reference 2 | I | — |
| D | 0.35 | WH/RD | 1164 | Accelerator Pedal Position 5V Reference 1 | I | — |
| E | 0.35 | YE/WH | 1161 | Accelerator Pedal Position Signal 1 | I | — |
| F | 0.35 | BK/D-BU | 1271 | Accelerator Pedal Position Low Reference 1 | I | — |

## B107 Accelerator Pedal Position Sensor (-E29)



### Connector Part Information

Harness Type: Brake Clutch

OEM Connector: 15326830

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F 150 GT Series, Sealed (BK)

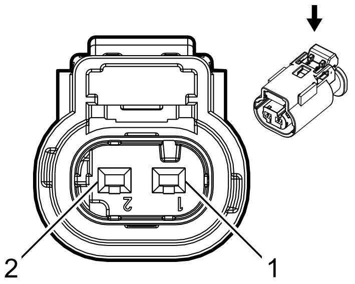
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B107 Accelerator Pedal Position Sensor (-E29)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.35 | BK/VT | 1272 | Accelerator Pedal Position Low Reference 2 | I | — |
| B | 0.35 | L-GN/WH | 1162 | Accelerator Pedal Position Signal 2 | I | — |
| C | 0.35 | BN/RD | 1274 | Accelerator Pedal Position 5V Reference 2 | I | — |
| D | 0.35 | WH/RD | 1164 | Accelerator Pedal Position 5V Reference 1 | I | — |
| E | 0.35 | YE/WH | 1161 | Accelerator Pedal Position Signal 1 | I | — |
| F | 0.35 | BK/D-BU | 1271 | Accelerator Pedal Position Low Reference 1 | I | — |

## B115 Vehicle Speed Sensor (L5P+MW7(-NQF/NQG))



### Connector Part Information

Harness Type: Engine

OEM Connector: 13735326

Service Connector: 13587326

Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

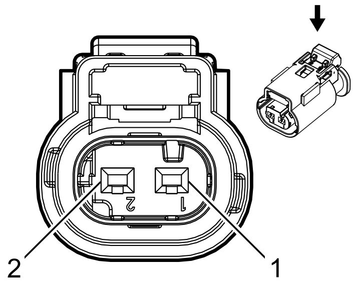
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B115 Vehicle Speed Sensor (L5P+MW7(-NQF/NQG))*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | GY/D-BU | 6358 | Output Speed Signal | I | — |
| 2 | 0.75 | YE/L-GN | 4170 | Transmission Position Sensor B 9V Reference | I | — |

## B115 Vehicle Speed Sensor (L5P+NQF+MW7)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13735326

Service Connector: 13587326

Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

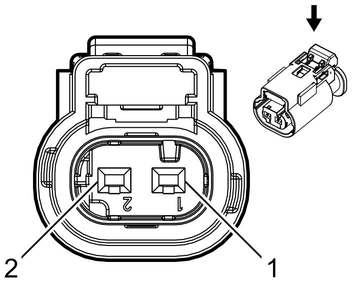
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B115 Vehicle Speed Sensor (L5P+NQF+MW7)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/D-BU | 6358 | Output Speed Signal | I | — |
| 2 | 0.5 | YE/L-GN | 4170 | Transmission Position Sensor B 9V Reference | I | — |

# B115 Vehicle Speed Sensor (L5P+NQG+MW7)



## Connector Part Information

Harness Type: Engine

OEM Connector: 13735326

Service Connector: 13587326

Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

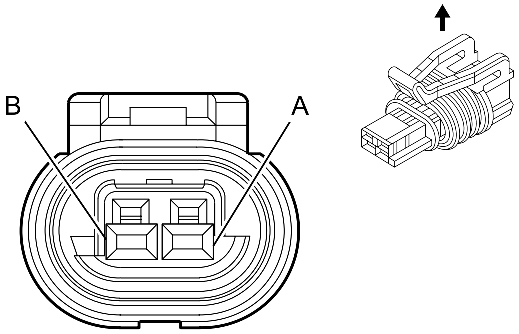
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B115 Vehicle Speed Sensor (L5P+NQG+MW7)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/D-BU | 6358 | Output Speed Signal | I | — |
| 2 | 0.5 | YE/L-GN | 4170 | Transmission Position Sensor B 9V Reference | I | — |

# B115 Vehicle Speed Sensor (L96+ZW9)



## Connector Part Information

Harness Type: Engine

OEM Connector: 15449028

Service Connector: 88987993

Description: 2-Way F 150 GT Series, Sealed (BK)

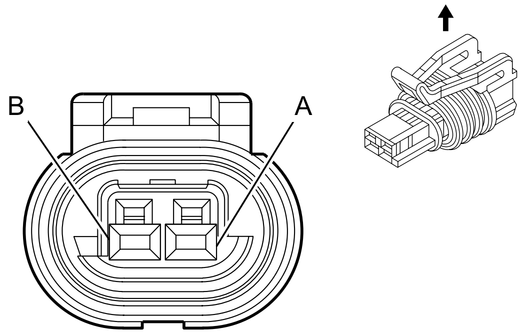
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B115 Vehicle Speed Sensor (L96+ZW9)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | VT/WH | 821 | Vehicle Speed Sensor Signal | I | — |
| B | 0.5 | BK/L-GN | 822 | Vehicle Speed Sensor Low Reference | I | — |

## B115 Vehicle Speed Sensor (LC8/L96 with NQF)



## Connector Part Information

Harness Type: Engine

OEM Connector: 15449028

Service Connector: 88987993

Description: 2-Way F 150 GT Series, Sealed (BK)

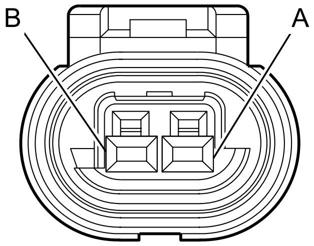
## *Terminal Part Information*

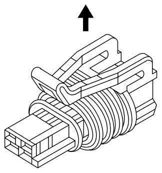
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B115 Vehicle Speed Sensor (LC8/L96 with NQF)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | VT/WH | 821 | Vehicle Speed Sensor Signal | I | — |
| B | 0.5 | BK/L-GN | 822 | Vehicle Speed Sensor Low Reference | I | — |

## B115 Vehicle Speed Sensor (LC8/L96 with NQG)





### Connector Part Information

Harness Type: Engine

OEM Connector: 15449028

Service Connector: 88987993

Description: 2-Way F 150 GT Series, Sealed (BK)

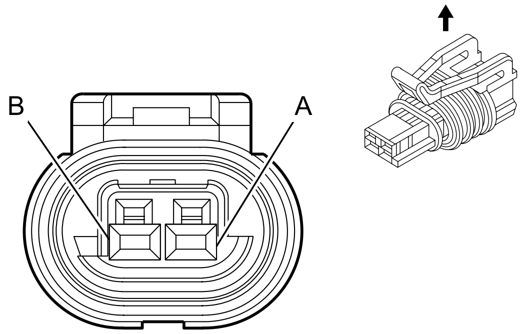
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B115 Vehicle Speed Sensor (LC8/L96 with NQG)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | VT/WH | 821 | Vehicle Speed Sensor Signal | I | — |
| B | 0.5 | BK/L-GN | 822 | Vehicle Speed Sensor Low Reference | I | — |

## B115 Vehicle Speed Sensor (LV3)



### Connector Part Information

Harness Type: Engine

OEM Connector: 15449028

Service Connector: 88987993

Description: 2-Way F 150 GT Series, Sealed (BK)

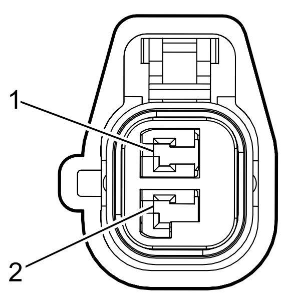
### *Terminal Part Information*

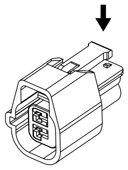
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B115 Vehicle Speed Sensor (LV3)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | VT/WH | 821 | Vehicle Speed Sensor Signal | I | — |
| B | 0.5 | BK/L-GN | 822 | Vehicle Speed Sensor Low Reference | I | — |

## B118B Windshield Washer Fluid Level Switch





### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33113086

Service Connector: 13593220

Description: 2-Way F 1.5 Series (L-GY)

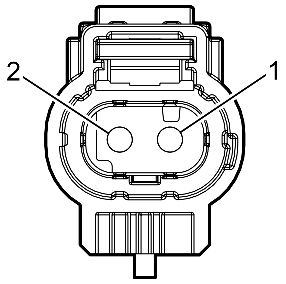
### *Terminal Part Information*

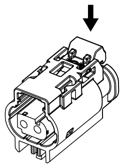
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B118B Windshield Washer Fluid Level Switch*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT | 185 | Low Washer Fluid Indicator Control | I | — |
| 2 | 0.5 | BK | 150 | Ground | I | — |

# B130A Exhaust Gas Recirculation Temperature Sensor 1





## Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 10094237

Service Connector: 19332628

Description: 2-Way F 1.2 Multilock Series, Sealed (GY)

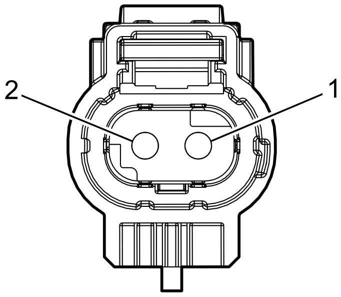
## *Terminal Part Information*

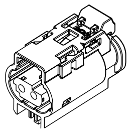
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B130A Exhaust Gas Recirculation Temperature Sensor 1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | WH/BN | 3237 | Exhaust Gas Recirculation Temperature Sensor Signal | I | L5P |
| 2 | 0.5 | BK/BU | 6274 | Exhaust Gas Recirculation Temperature Sensor Low Reference | I | L5P |

# B130B Exhaust Gas Recirculation Temperature Sensor 2





## Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 10094241

Service Connector: 19354079

Description: 5-Way F 1.2 Multilock Series, Sealed

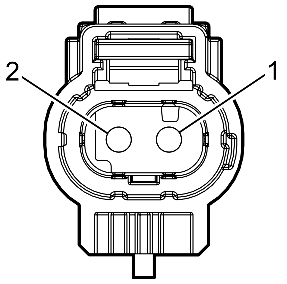
## *Terminal Part Information*

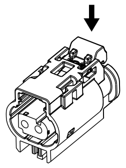
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B130B Exhaust Gas Recirculation Temperature Sensor 2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/GN | 3236 | Exhaust Gas Recirculation Temperature Sensor 2 Signal | I | L5P |
| 2 | 0.5 | BK/YE | 6275 | Exhaust Gas Recirculation Temperature Sensor 2 Low Reference | I | L5P |

# B131A Exhaust Temperature Sensor 1





## Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 10094234

Service Connector: 19332719

Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

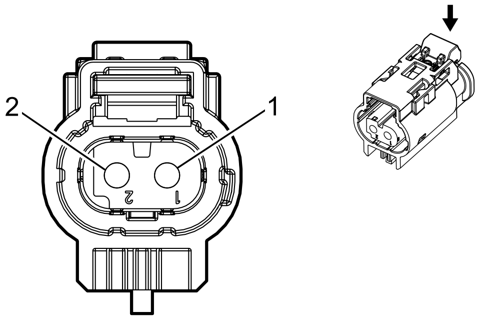
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B131A Exhaust Temperature Sensor 1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BU/WH | 5277 | Exhaust Gas Temperature Sensor 1 | I | L5P |
| 2 | 0.5 | BK/BN | 6782 | Exhaust Gas Temperature Sensor 1 Low Reference | I | L5P |

## B131B Exhaust Temperature Sensor 2



### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 10094236

Service Connector: 19332627

Description: 2-Way F 1.2 Multilock Series, Sealed (GY)

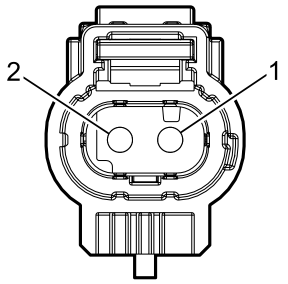
### *Terminal Part Information*

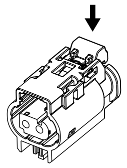
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B131B Exhaust Temperature Sensor 2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BU/GN | 5377 | Exhaust Gas Temperature Sensor 2 | I | L5P |
| 2 | 0.5 | BK/BU | 6783 | Exhaust Gas Temperature Sensor 2 Low Reference | I | L5P |

# B131C Exhaust Temperature Sensor 3





## Connector Part Information

Harness Type: Chassis

OEM Connector: 33180624

Service Connector: 19332628

Description: 2-Way F 1.2 Multilock Series, Sealed (GY)

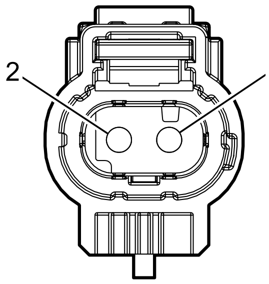
## *Terminal Part Information*

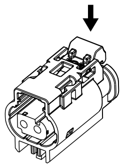
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B131C Exhaust Temperature Sensor 3*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/L-GN | 5378 | Exhaust Gas Temperature Sensor 3 | I | — |
| 2 | 0.5 | BK/L-GN | 3657 | Exhaust Gas Temperature Sensor 3 Low Reference | I | — |

## B131D Exhaust Temperature Sensor 4





### Connector Part Information

Harness Type: Chassis

OEM Connector: 33180624

Service Connector: 19332628

Description: 2-Way F 1.2 Multilock Series, Sealed (GY)

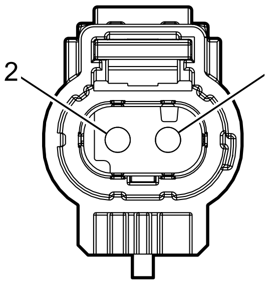
### *Terminal Part Information*

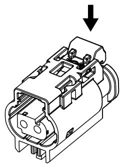
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B131D Exhaust Temperature Sensor 4*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | D-BU/GY | 3660 | Exhaust Gas Temperature Sensor 5 Signal | I | — |
| 2 | 0.5 | BK/VT | 3661 | Exhaust Gas Temperature Sensor 5 Low Reference | I | — |

# B131E Exhaust Temperature Sensor 5





## Connector Part Information

Harness Type: Chassis

OEM Connector: 33180624

Service Connector: 19332628

Description: 2-Way F 1.2 Multilock Series, Sealed (GY)

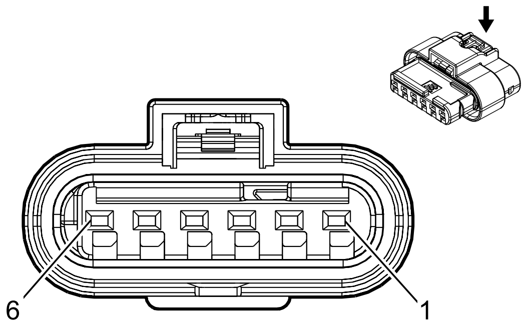
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B131E Exhaust Temperature Sensor 5*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/BN | 3658 | Exhaust Gas Temperature Sensor 4 Signal | I | — |
| 2 | 0.5 | BK/GY | 3659 | Exhaust Gas Temperature Sensor 4 Low Reference | I | — |

## B136 Exhaust Particulate Matter Sensor



### Connector Part Information

Harness Type: Chassis

OEM Connector: 15525825

Service Connector: 19329386

Description: 6-Way F 1.2 MCON-CB Series, Sealed (BN)

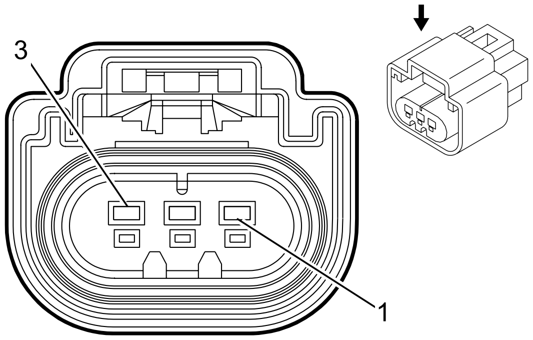
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B136 Exhaust Particulate Matter Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 1.5 | BK | 2150 | Ground | I | — |
| 2 | 0.5 | WH | 4499 | High Speed GMLAN Serial Data (-) 7 | I | — |
| 3 | 0.5 | WH | 4499 | High Speed GMLAN Serial Data (-) 7 | I | — |
| 4 | 0.5 | D-BU/BN | 4498 | High Speed GMLAN Serial Data (+) 7 | I | — |
| 5 | 0.5 | D-BU/BN | 4498 | High Speed GMLAN Serial Data (+) 7 | I | — |
| 6 | 1.5 | VT/D-BU | 3674 | NOx Sensor 1 Control | I | — |

## B150 Fuel Tank Pressure Sensor



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13511996

Service Connector: 13580873

Description: 3-Way F 150 GT Series, Sealed (GY)

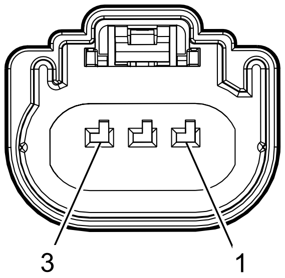
### *Terminal Part Information*

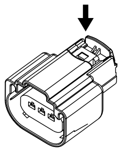
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B150 Fuel Tank Pressure Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | D-BU/WH | 890 | Fuel Tank Pressure Sensor Signal | I | — |
| 2 | 0.5 | BK/L-GN | 6281 | Fuel Level Sensor Low Reference | I | — |
| 3 | 0.5 | YE/RD | 2709 | Fuel Tank Pressure Sensor 5V Reference | I | — |

## B152LF Suspension Position Sensor - Left Front





### Connector Part Information

Harness Type: Chassis

OEM Connector: 13873527

Service Connector: 19300594

Description: 3-Way F 1.5 Series, Sealed (GY)

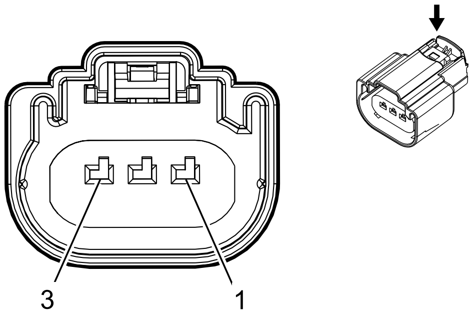
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B152LF Suspension Position Sensor - Left Front*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | D-BU/RD | 1205 | Left Front Strut Position Sensor 5V Reference | I | — |
| 2 | 0.5 | BK/D-BU | 1206 | Left Front Strut Position Sensor Low Reference | I | — |
| 3 | 0.5 | BN/WH | 1207 | Left Front Strut Position Sensor Signal | I | — |

# B152LR Suspension Position Sensor - Left Rear



## Connector Part Information

Harness Type: Chassis

OEM Connector: 13873527

Service Connector: 19300594

Description: 3-Way F 1.5 Series, Sealed (GY)

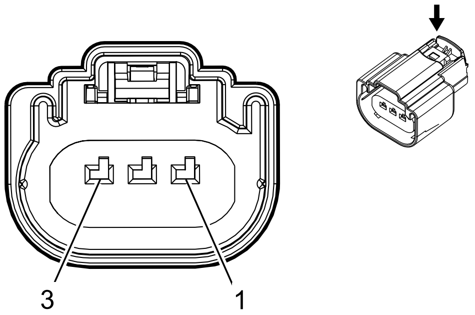
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B152LR Suspension Position Sensor - Left Rear*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/RD | 1208 | Left Rear Strut Position Sensor 5V Reference | I | — |
| 2 | 0.5 | BK/L-GN | 1209 | Left Rear Strut Position Sensor Low Reference | I | — |
| 3 | 0.5 | L-GN/WH | 1210 | Left Rear Strut Position Sensor Signal | I | — |

## B152RF Suspension Position Sensor - Right Front



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13873527

Service Connector: 19300594

Description: 3-Way F 1.5 Series, Sealed (GY)

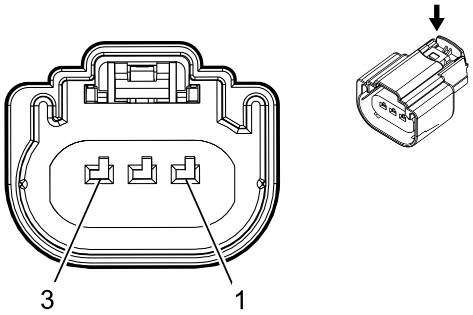
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B152RF Suspension Position Sensor - Right Front*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BN/RD | 1211 | Right Front Strut Position Sensor 5V Reference | I | — |
| 2 | 0.5 | BK/GY | 1212 | Right Front Strut Position Sensor Low Reference | I | — |
| 3 | 0.5 | YE/WH | 1213 | Right Front Strut Position Sensor Signal | I | — |

## B152RR Suspension Position Sensor - Right Rear



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13873527

Service Connector: 19300594

Description: 3-Way F 1.5 Series, Sealed (GY)

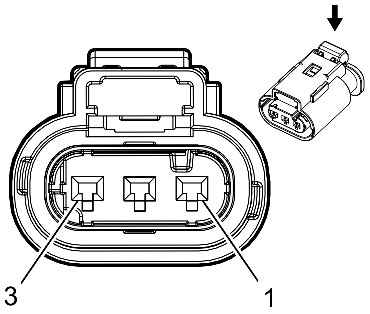
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B152RR Suspension Position Sensor - Right Rear*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | L-GN/RD | 1214 | Right Rear Strut Position Sensor 5V Reference | I | — |
| 2 | 0.5 | BK/YE | 1215 | Right Rear Strut Position Sensor Low Reference | I | — |
| 3 | 0.5 | L-GN/GY | 1216 | Right Rear Strut Position Sensor Signal | I | — |

## B154 Diesel Particulate Filter Exhaust Differential Pressure Sensor



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13763990

Service Connector: 19299690

Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

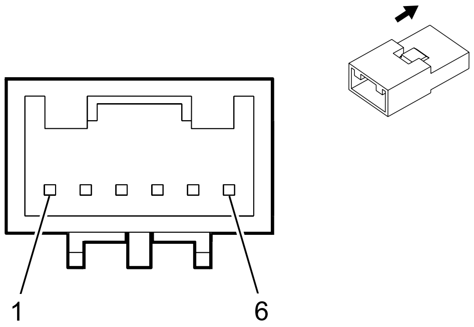
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B154 Diesel Particulate Filter Exhaust Differential Pressure Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | D-BU | 6053 | Exhaust Pressure Sensor Signal 1 | I | — |
| 2 | 0.5 | BK/YE | 6055 | Exhaust Pressure Sensor Low Reference 1 | I | — |
| 3 | 0.5 | WH/RD | 6054 | Exhaust Pressure Sensor 5V Reference 1 | I | — |

## B160 Windshield Temperature and Inside Moisture Sensor



### Connector Part Information

Harness Type: RH A Pillar

OEM Connector: 13770074

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way M 0.64 Kaizen Series (BK)

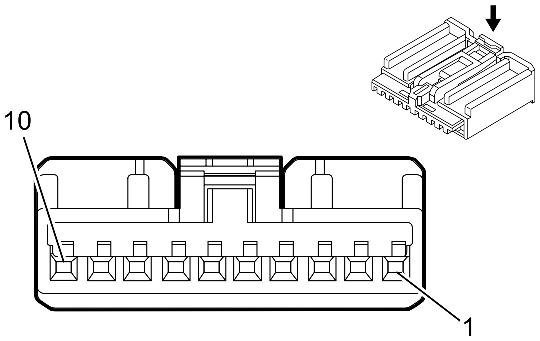
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-65B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B160 Windshield Temperature and Inside Moisture Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | YE/RD | 597 | 5V Reference | I | — |
| 2 | 0.35 | GY/D-BU | 7564 | Humidity Sensor Signal | I | — |
| 3 | 0.35 | BK/D-BU | 7566 | Humidity/Windscreen Temp Sensor Low Reference | I | — |
| 4 | 0.35 | GY/D-GN | 7565 | Windscreen Temp Sensor Signal | I | — |
| 5 | 0.35 | YE/D-BU | 3197 | Humidity Temperature Sensor Signal | I | — |
| 6 | — | — | — | Not Occupied | — | — |

## B174W Frontview Camera - Windshield (UFL)



### Connector Part Information

Harness Type: Headliner

OEM Connector: 13574592

Service Connector: 13576634

Description: 10-Way F 0.64 Kaizen Series (BK)

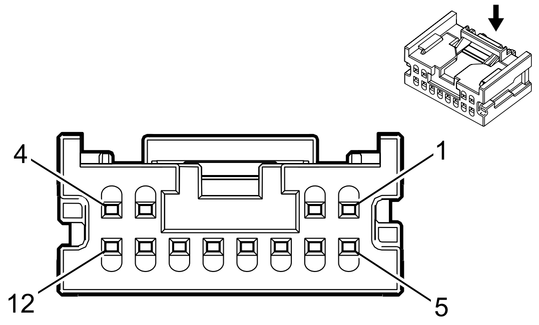
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300440 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |

### *B174W Frontview Camera - Windshield (UFL)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK | 1050 | Ground | I | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | RD/L-GN | 3140 | Battery Positive Voltage | I | — |
| 4 | 0.35 | WH | 3152 | Lane Departure Warning Indicator Control | I | — |
| 5 - 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.35 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |
| 8 - 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.35 | GY/WH | 3153 | Lane Departure Warning Disable Switch Signal | I | — |

# B174W Frontview Camera - Windshield (UHX)



## Connector Part Information

Harness Type: Headliner

OEM Connector: 33235297

Service Connector: 19353780

Description: 12-Way F Mini 50 Series (BK)

## *Terminal Part Information*

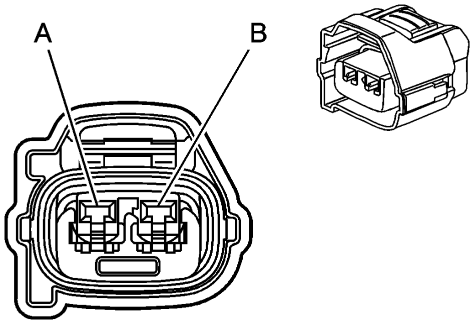
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13579954 | No Tool Required | J-38125-553 | Not Available | Not Available | Not Available | Not Available |

## *B174W Frontview Camera - Windshield (UHX)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | BK | 1050 | Ground | I | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.35 | RD/L-GN | 3140 | Battery Positive Voltage | I | — |
| 4 | 0.35 | WH | 3152 | Lane Departure Warning Indicator Control | I | — |
| 5 | 0.35 | D-BU/GY | 3935 | High Speed GMLAN Serial Data (+) 8 | I | — |
| 6 | 0.35 | WH/GY | 3936 | High Speed GMLAN Serial Data (-) 8 | I | — |
| 7 | 0.35 | D-BU/GY | 3935 | High Speed GMLAN Serial Data (+) 8 | I | — |
| 8 | 0.35 | WH/GY | 3936 | High Speed GMLAN Serial Data (-) 8 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | 0.35 | WH/D-BU | 5986 | Serial Data Communication Enable | I | — |
| 10 | 0.35 | GY/WH | 3153 | Lane Departure Warning Disable Switch Signal | I | — |
| 11 | 0.35 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |
| 12 | — | — | — | Not Occupied | — | — |

## B193A Charge Air Cooler Inlet Temperature Sensor



### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 7283-7020-10

Service Connector: 13576415

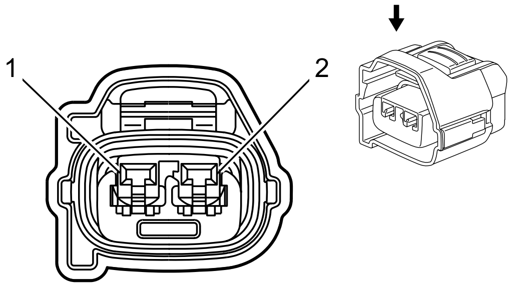
Description: 2-Way F 2.3 Series, Sealed (D-GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-18 (BK) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B193A Charge Air Cooler Inlet Temperature Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GN | 3683 | Charge Air Cooler Inlet Temperature Sensor Signal | I | L5P |
| 2 | 0.5 | YE/BK | 3682 | Charge Air Cooler Inlet Temperature Sensor Low Reference | I | L5P |



## Connector Part Information

Harness Type: Engine

OEM Connector: 15401053

Service Connector: 13576415

Description: 2-Way F 090 Series, Sealed (D-GY)

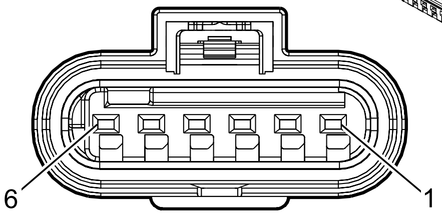
## *Terminal Part Information*

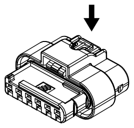
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-18 (BK) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B193B Charge Air Cooler Outlet Temperature Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BN | 3681 | Charge Air Cooler Outlet Temperature Sensor Signal | I | — |
| 2 | 0.5 | YE/D-BU | 3680 | Charge Air Cooler Outlet Temperature Sensor Low Reference | I | — |

## B195A Nitrogen Oxides Sensor 1 (L5P)





### Connector Part Information

Harness Type: Engine

OEM Connector: 13975341

Service Connector: 19329354

Description: 6-Way F 1.2 MCON-CB Series, Sealed (BN)

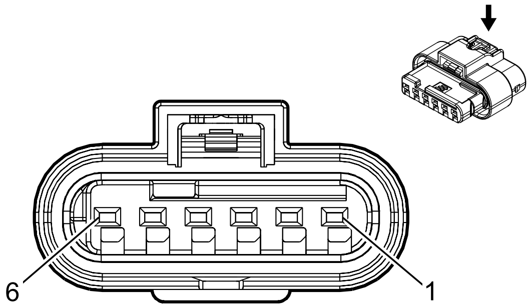
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B195A Nitrogen Oxides Sensor 1 (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/D-BU | 3674 | NOx Sensor 1 Control | I | — |
| 2 | 0.5 | D-BU/BN | 4498 | High Speed GMLAN Serial Data (+) 7 | I | — |
| 3 | 0.5 | D-BU/BN | 4498 | High Speed GMLAN Serial Data (+) 7 | I | — |
| 4 | 0.5 | WH | 4499 | High Speed GMLAN Serial Data (-) 7 | I | — |
| 5 | 0.5 | WH | 4499 | High Speed GMLAN Serial Data (-) 7 | I | — |
| 6 | 0.75 | BK/WH | 451 | Signal Ground | I | — |

## B195B Nitrogen Oxides Sensor 2



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13961841

Service Connector: 13586091

Description: 6-Way F 1.2 MCON-CB Series, Sealed (BN)

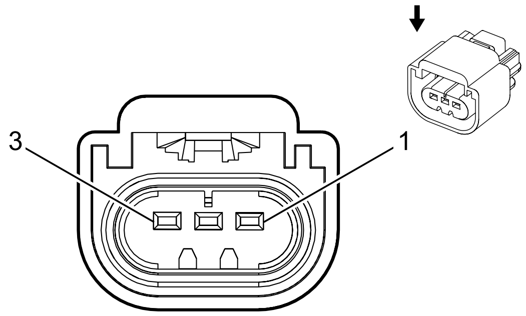
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B195B Nitrogen Oxides Sensor 2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 1.5 | VT/D-BU | 3674 | NOx Sensor 1 Control | I | — |
| 2 | 0.5 | D-BU/BN | 4498 | High Speed GMLAN Serial Data (+) 7 | I | — |
| 3 | 0.5 | D-BU/BN | 4498 | High Speed GMLAN Serial Data (+) 7 | I | — |
| 4 | 0.5 | WH | 4499 | High Speed GMLAN Serial Data (-) 7 | I | — |
| 5 | 0.5 | WH | 4499 | High Speed GMLAN Serial Data (-) 7 | I | — |
| 6 | 1.5 | BK | 2150 | Ground | I | — |

## B198 Fuel Composition Sensor



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13511132

Service Connector: 19301582

Description: 3-Way F 150 GT Series, Sealed (BN)

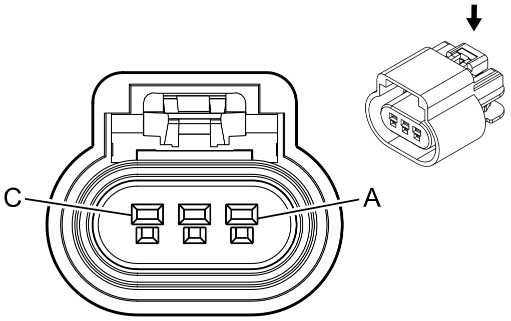
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B198 Fuel Composition Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/D-BU | 5294 | Powertrain Main Relay Fused Supply 5 | I | — |
| 2 | 0.5 | BK | 2150 | Ground | I | — |
| 3 | 0.5 | WH | 1579 | Fuel Temperature/Composition Signal | I | — |

## B227 Gear Position Sensor



### Connector Part Information

Harness Type: Engine

OEM Connector: 15326808

Service Connector: 13580871

Description: 3-Way F 150 GT Series, Sealed (BK)

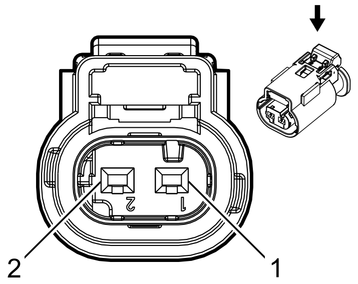
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B227 Gear Position Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | YE/BK | 7478 | Rotary Position Sensor Low Reference | I | — |
| B | 0.5 | WH/RD | 7477 | Rotary Position Sensor 5V Reference | I | — |
| C | 0.5 | WH/L-GN | 7479 | Rotary Position Sensor Signal | I | — |

# B235 Starter/Generator Coolant Temperature Sensor



## Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13735326

Service Connector: 13587326

Description: 2-Way F 1.2 Multilock Series, Sealed (BK)

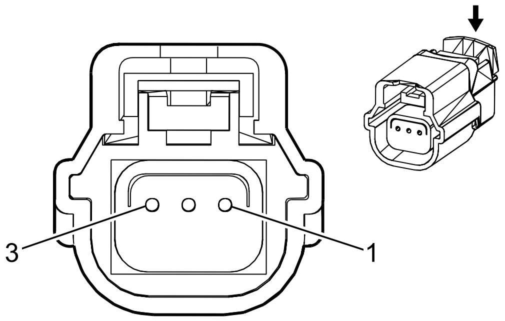
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B235 Starter/Generator Coolant Temperature Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/VT | 3873 | Powertrain Electronics Cooling Loop (PECL) Temperature Sensor Signal | I | — |
| 2 | 0.5 | BK/GY | 3872 | Powertrain Electronics Cooling Loop (PECL) Temperature Sensor Low Reference | I | — |

## B306A Parking Assist Sensor - Front Left Outer



### Connector Part Information

Harness Type: Front Bumper

OEM Connector: 13512481

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 0.64 Series, Sealed (BK)

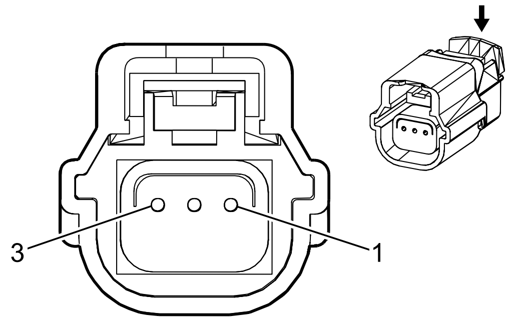
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B306A Parking Assist Sensor - Front Left Outer*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/L-GN | 5213 | Front Parking Left/Right/Mid Sensor | I | — |
| 2 | 0.5 | VT/WH | 5215 | Front Parking Left Corner Sensor | I | — |
| 3 | 0.5 | BK/D-BU | 5214 | Front Parking Sensor Low Reference | I | — |

# B306B Parking Assist Sensor - Front Left Middle



## Connector Part Information

Harness Type: Front Bumper

OEM Connector: 13512481

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 0.64 Series, Sealed (BK)

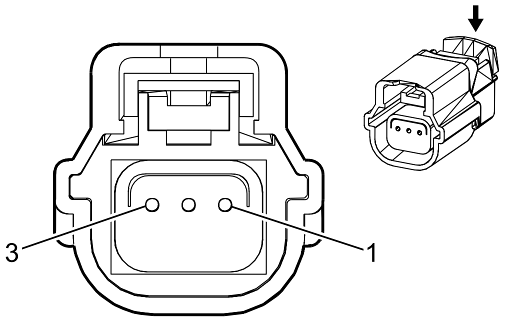
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *B306B Parking Assist Sensor - Front Left Middle*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/L-GN | 5213 | Front Parking Left/Right/Mid Sensor | I | — |
| 2 | 0.5 | YE/GY | 5216 | Front Parking Left Mid Sensor | I | — |
| 3 | 0.5 | BK/D-BU | 5214 | Front Parking Sensor Low Reference | I | — |

## B306C Parking Assist Sensor - Front Right Middle



### Connector Part Information

Harness Type: Front Bumper

OEM Connector: 13512481

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 0.64 Series, Sealed (BK)

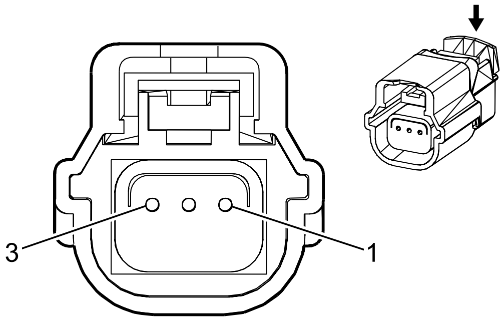
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B306C Parking Assist Sensor - Front Right Middle*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/L-GN | 5213 | Front Parking Left/Right/Mid Sensor | I | — |
| 2 | 0.5 | VT/GY | 5218 | Front Parking Right Mid Sensor | I | — |
| 3 | 0.5 | BK/D-BU | 5214 | Front Parking Sensor Low Reference | I | — |

## B306D Parking Assist Sensor - Front Right Outer



### Connector Part Information

Harness Type: Front Bumper

OEM Connector: 13512481

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 0.64 Series, Sealed (BK)

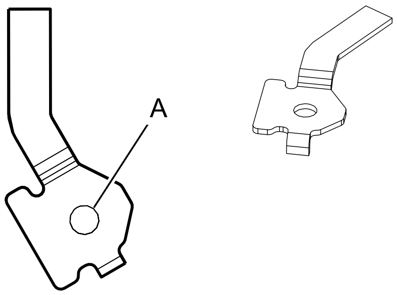
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *B306D Parking Assist Sensor - Front Right Outer*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/L-GN | 5213 | Front Parking Left/Right/Mid Sensor | I | — |
| 2 | 0.5 | WH/GY | 5217 | Front Parking Right Corner Sensor | I | — |
| 3 | 0.5 | BK/D-BU | 5214 | Front Parking Sensor Low Reference | I | — |

# C4A Hybrid/EV Battery Section 1 (HP5 (NEGATIVE))



## Connector Part Information

Harness Type: High Voltage Battery Negative

OEM Connector: 15544775

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

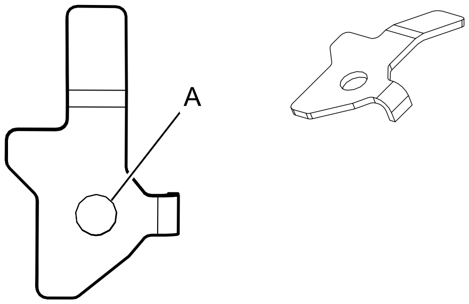
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *C4A Hybrid/EV Battery Section 1 (HP5 (NEGATIVE))*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 12 | OG | 5084 | High Voltage Battery (+) | I | — |

# C4A Hybrid/EV Battery Section 1 (HP5 (POSITIVE))



## Connector Part Information

Harness Type: High Voltage Battery Manual Service Disconnect

OEM Connector: 15544777

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

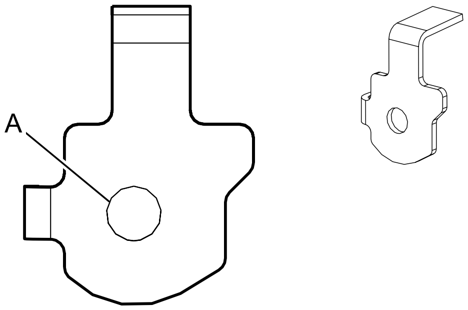
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *C4A Hybrid/EV Battery Section 1 (HP5 (POSITIVE))*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 12 | OG | 3970 | High Voltage Battery 4 (+) | I | — |

## C4B Hybrid/EV Battery Section 2 (HP5 (NEGATIVE))



### Connector Part Information

Harness Type: High Voltage Battery Manual Service Disconnect

OEM Connector: 15544776

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

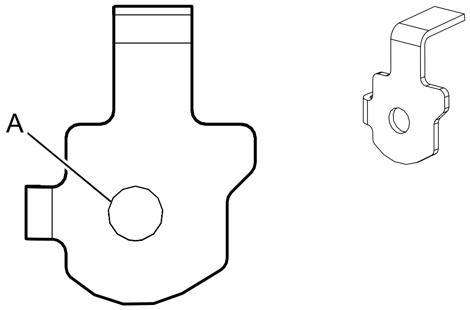
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *C4B Hybrid/EV Battery Section 2 (HP5 (NEGATIVE))*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 12 | OG | 3970 | High Voltage Battery 4 (+) | I | — |

## C4B Hybrid/EV Battery Section 2 (HP5 (POSITIVE))



### Connector Part Information

Harness Type: High Voltage Battery Positive

OEM Connector: 15544776

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

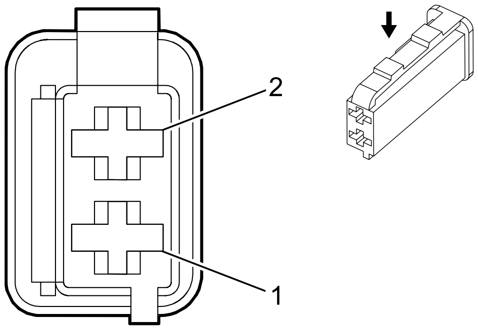
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *C4B Hybrid/EV Battery Section 2 (HP5 (POSITIVE))*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 12 | OG | 5084 | High Voltage Battery (+) | I | — |

## E1C Accent Lamp - Driver Door Handle



### Connector Part Information

Harness Type: Driver Door Trim

OEM Connector: 13670097

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.6 Timer Series (BK)

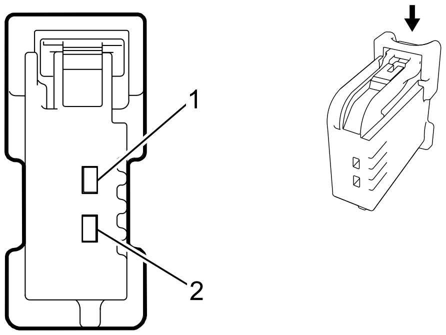
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E1C Accent Lamp - Driver Door Handle*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | WH/YE | 7557 | LED Ambient Lighting Control 1 | I | — |
| 2 | 0.35 | BK | 1150 | Ground | I | — |

# E1L Accent Lamp - Overhead Console



## Connector Part Information

Harness Type: Overhead Console

OEM Connector: 13595207

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.5 Series (BK)

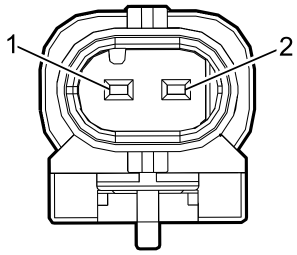
## *Terminal Part Information*

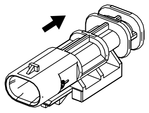
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E1L Accent Lamp - Overhead Console*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | VT/L-GN | 7558 | LED Ambient Lighting Control 2 | I | — |
| 2 | 0.35 | BK | 1050 | Ground | I | — |

## E2A Marker Lamp - Endgate





### Connector Part Information

Harness Type: Rear Clearance Lamps

OEM Connector: 13788295

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 1.2 Multilock Series, Sealed (BK)

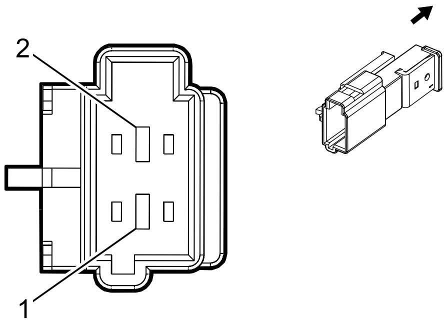
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-13 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E2A Marker Lamp - Endgate*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/BN | 309 | Right Park Lamp Control | I | — |
| 2 | 0.5 | BK | 1750 | Ground | I | — |

# E3A Roof Clearance Lamp - Left Front Outer



## Connector Part Information

Harness Type: RH A Pillar

OEM Connector: 13662506

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 1.6 Timer Series (BK)

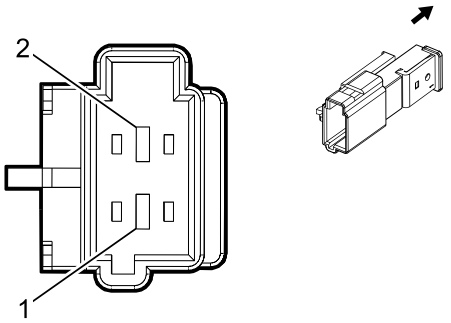
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-34 (YE) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E3A Roof Clearance Lamp - Left Front Outer*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/GY | 709 | Left Park Lamp Control | I | — |
| 2 | 0.5 | BK | 1050 | Ground | I | — |

## E3C Roof Clearance Lamp - Front Middle



### Connector Part Information

Harness Type: RH A Pillar

OEM Connector: 13662506

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 1.6 Timer Series (BK)

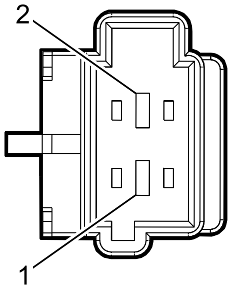
### *Terminal Part Information*

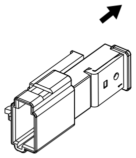
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-34 (YE) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E3C Roof Clearance Lamp - Front Middle*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/GY | 709 | Left Park Lamp Control | I | — |
| 2 | 0.5 | BK | 1050 | Ground | I | — |

## E3E Roof Clearance Lamp - Right Front Outer





### Connector Part Information

Harness Type: RH A Pillar

OEM Connector: 13662506

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 1.6 Timer Series (BK)

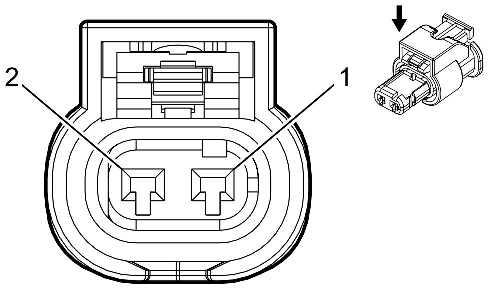
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-34 (YE) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E3E Roof Clearance Lamp - Right Front Outer*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/GY | 709 | Left Park Lamp Control | I | — |
| 2 | 0.5 | BK | 1050 | Ground | I | — |

# E3LF Rear Fender Clearance Lamp - Left Front



## Connector Part Information

Harness Type: Rear Clearance Lamps

OEM Connector: 13627836

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.2 MCP Series, Sealed (BK)

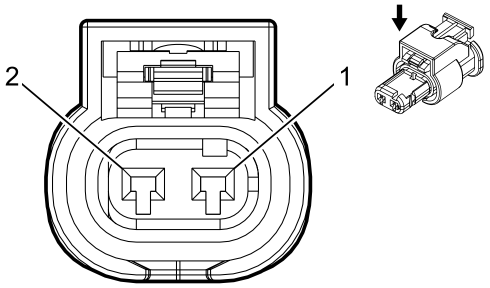
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E3LF Rear Fender Clearance Lamp - Left Front*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/GY | 709 | Left Park Lamp Control | I | — |
| 2 | 0.5 | BK | 1750 | Ground | I | — |

# E3LR Rear Fender Clearance Lamp - Left Rear



## Connector Part Information

Harness Type: Rear Clearance Lamps

OEM Connector: 13627836

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.2 MCP Series, Sealed (BK)

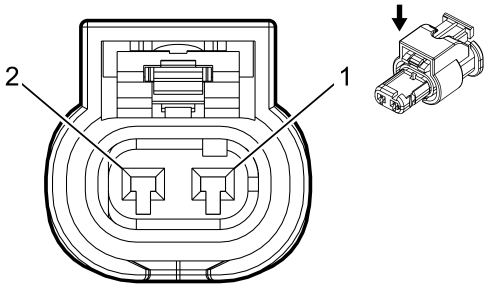
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E3LR Rear Fender Clearance Lamp - Left Rear*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/GY | 709 | Left Park Lamp Control | I | — |
| 2 | 0.5 | BK | 1750 | Ground | I | — |

## E3RF Rear Fender Clearance Lamp - Right Front



### Connector Part Information

Harness Type: Rear Clearance Lamps

OEM Connector: 13627836

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.2 MCP Series, Sealed (BK)

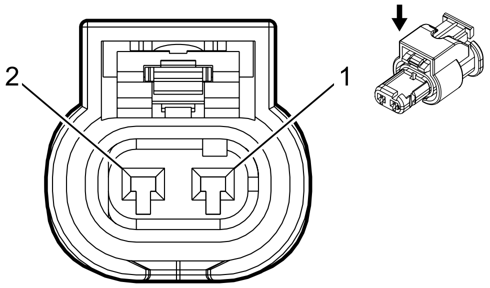
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E3RF Rear Fender Clearance Lamp - Right Front*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/BN | 309 | Right Park Lamp Control | I | — |
| 2 | 0.5 | BK | 1750 | Ground | I | — |

## E3RR Rear Fender Clearance Lamp - Right Rear



### Connector Part Information

Harness Type: Rear Clearance Lamps

OEM Connector: 13627836

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.2 MCP Series, Sealed (BK)

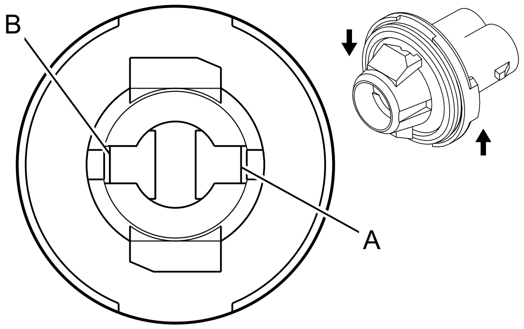
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E3RR Rear Fender Clearance Lamp - Right Rear*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/BN | 309 | Right Park Lamp Control | I | — |
| 2 | 0.5 | BK | 1750 | Ground | I | — |

# E7L License Plate Lamp - Left



## Connector Part Information

Harness Type: Rear Bumper

OEM Connector: 15324946

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F Lamp Socket Wedge Base, Type W-2 (D-GY)

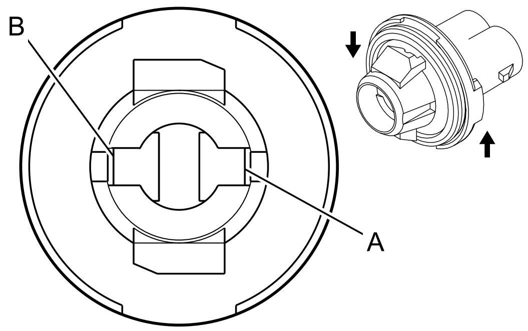
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E7L License Plate Lamp - Left*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | L-GN/YE | 6846 | Rear License Lamp Control | I | — |
| B | 0.5 | BK | 1750 | Ground | I | — |

# E7R License Plate Lamp - Right



## Connector Part Information

Harness Type: Rear Bumper

OEM Connector: 15324946

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F Lamp Socket Wedge Base, Type W-2 (D-GY)

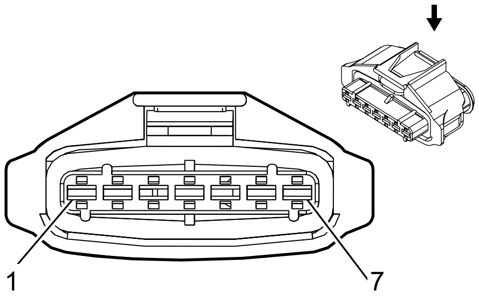
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E7R License Plate Lamp - Right*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | L-GN/YE | 6846 | Rear License Lamp Control | I | — |
| B | 0.5 | BK | 1750 | Ground | I | — |

## E11A Fuel Heater/Water in Fuel Sensor



### Connector Part Information

Harness Type: Chassis

OEM Connector: 10774827

Service Connector: 19354080

Description: 7-Way F 2.8 Junior Power Timer Series, Sealed (BK)

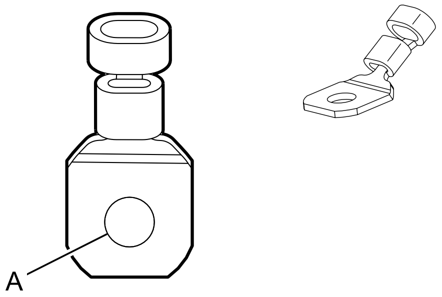
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-33 (YE) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E11A Fuel Heater/Water in Fuel Sensor*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/VT | 412 | Fuel Filter Temperature Sensor Low Reference | II | — |
| 2 | 0.5 | BN/VT | 455 | Fuel Filter Temperature Signal | II | — |
| 3 | 0.5 | D-BU/YE | 6861 | Water In Fuel Sensor Signal | II | — |
| 4 | 0.5 | BK/D-BU | 6863 | Water In Fuel Sensor Low Reference | II | — |
| 5 | — | — | — | Not Occupied | — | — |
| 6 | 2.5 | VT/L-GN | 355 | Fuel Filter Heater Voltage | I | — |
| 7 | 2.5 | BK | 2150 | Ground | I | — |

## E12A Glow Plug 1



### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 7009-1338-02

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

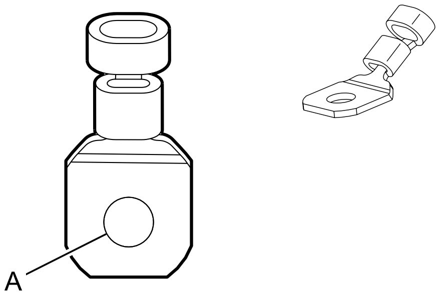
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E12A Glow Plug 1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 2 | GY/BU | 1581 | Glow Plug Control 1 | I | L5P |

## E12B Glow Plug 2



### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 7009-1338-02

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

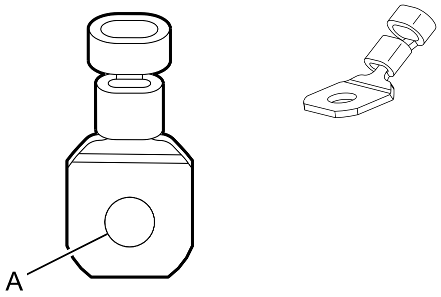
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E12B Glow Plug 2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 2 | GY/BN | 1582 | Glow Plug Control 2 | I | L5P |

## E12C Glow Plug 3



### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 7009-1338-02

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

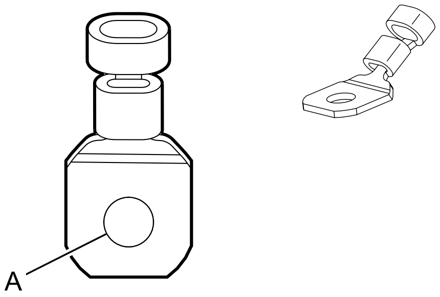
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E12C Glow Plug 3*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 2 | GY/GN | 1583 | Glow Plug Control 3 | I | L5P |

# E12D Glow Plug 4



## Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 7009-1338-02

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

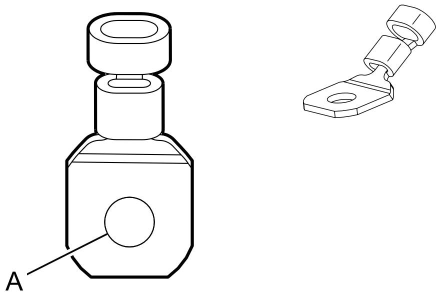
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E12D Glow Plug 4*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 2 | GY/YE | 1584 | Glow Plug Control 4 | I | L5P |

## E12E Glow Plug 5



### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 7009-1338-02

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

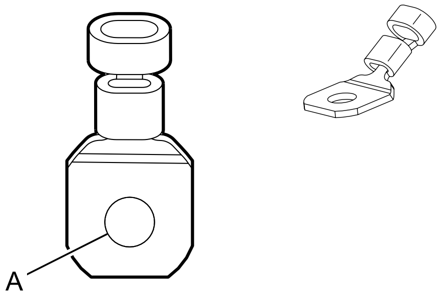
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E12E Glow Plug 5*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 2 | GY/WH | 1585 | Glow Plug Control 5 | I | L5P |

# E12F Glow Plug 6



## Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 7009-1338-02

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

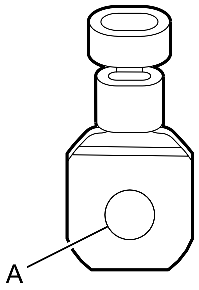
## *Terminal Part Information*

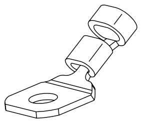
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E12F Glow Plug 6*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 2 | GY/VT | 1586 | Glow Plug Control 6 | I | L5P |

## E12G Glow Plug 7





### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 7009-1338-02

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

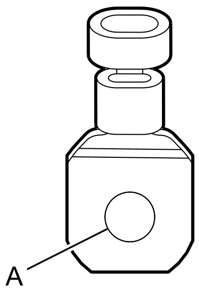
### *Terminal Part Information*

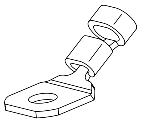
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E12G Glow Plug 7*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 2 | WH/BK | 1587 | Glow Plug Control 7 | I | L5P |

## E12H Glow Plug 8





### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 7009-1338-02

Service Connector: Service by Cable Assembly - See Part Catalog

Description: 1-Way Ring Terminal

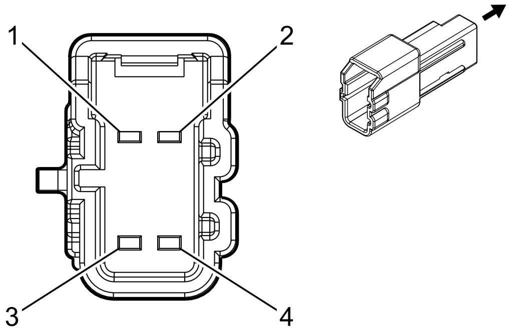
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E12H Glow Plug 8*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 2 | WH/BU | 1588 | Glow Plug Control 8 | I | L5P |

## E14A Seat Heating Element - Driver Back



### Connector Part Information

Harness Type: Driver Seat Back Jumper

OEM Connector: 6098-7781

Service Connector: Service by Harness - See Part Catalog

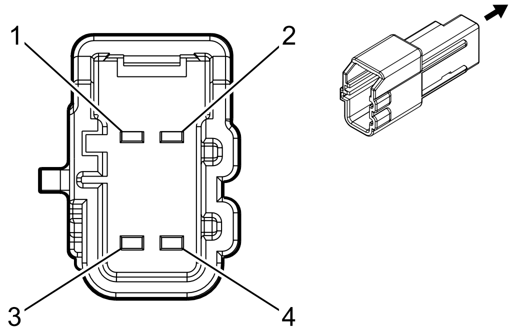
Description: 4-Way M 1.2 Series (GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-13 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E14A Seat Heating Element - Driver Back*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | BN | 2432 | Driver Heated Back Element Control | I | — |
| 2 | 0.5 | L-BU | 2425 | Driver Heated Back NTC Signal | I | — |
| 3 | 0.5 | BK/YE | 2080 | Driver Heated Seat NTC Low Reference | I | — |
| 4 | 0.75 | BN/BK | 2078 | Driver Heated Seat Element Low Reference | I | — |



## Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 6098-7779

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way M 1.2 Series (BK)

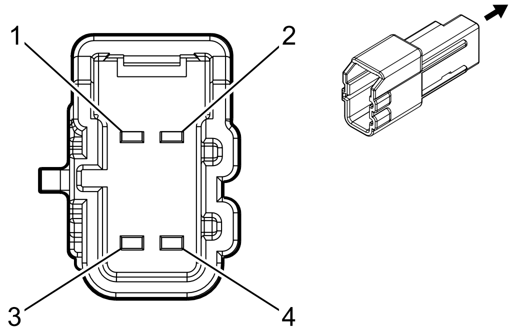
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-13 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E14B Seat Heating Element - Driver Cushion*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | BN/VT | 2077 | Driver Heated Seat Element Control | I | — |
| 2 | 0.5 | YE/GY | 2079 | Driver Heated Seat NTC Signal | I | — |
| 3 | 0.5 | BN/YE | 2080 | Driver Heated Seat NTC Low Reference | I | — |
| 4 | 0.75 | BN/BK | 2078 | Driver Heated Seat Element Low Reference | I | — |

## E14C Seat Heating Element - Passenger Back



### Connector Part Information

Harness Type: Passenger Seat Back

OEM Connector: 6098-7781

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way M 1.2 Series (GY)

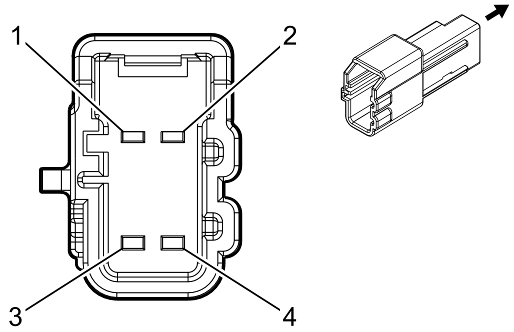
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-13 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E14C Seat Heating Element - Passenger Back*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | WH/BN | 2481 | Passenger Heated Back Element Control | I | — |
| 2 | 0.5 | WH/L-BU | 2436 | Passenger Heated Back NTC Signal | I | — |
| 3 | 0.5 | BK/L-GN | 2482 | Passenger Heated Back NTC Low Reference | I | — |
| 4 | 0.75 | GY/BK | 2480 | Passenger Heated Seat Element Low Reference | I | — |

## E14D Seat Heating Element - Passenger Cushion



### Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 6098-7779

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way M 1.2 Series (BK)

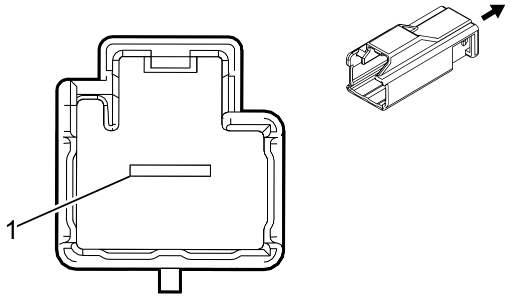
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-13 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E14D Seat Heating Element - Passenger Cushion*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | BN/L-BU | 2479 | Passenger Heated Seat Element Control | I | — |
| 2 | 0.5 | WH/GY | 2434 | Passenger Heated Seat NTC Signal | I | — |
| 3 | 0.5 | BK/GY | 2435 | Passenger Heated Seat NTC Low Reference | I | — |
| 4 | 0.75 | GY/BK | 2480 | Passenger Heated Seat Element Low Reference | I | — |

## E18 Rear Defogger Grid X1



### Connector Part Information

Harness Type: Body

OEM Connector: 13953570

Service Connector: 19333227

Description: 1-Way M 6.3 Series (BK)

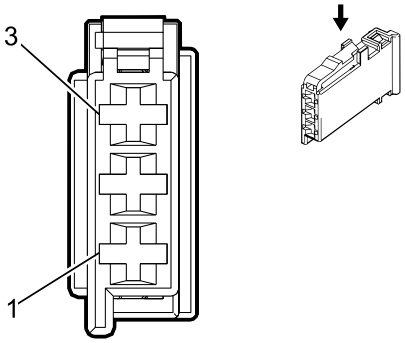
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-43 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E18 Rear Defogger Grid X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | BN/VT | 293 | Rear Defog Element Control | I | — |

## E28 Center Console Compartment Lamp



### Connector Part Information

Harness Type: Floor Console

OEM Connector: 10865339

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F 1.6 Micro-Timer Series (BK)

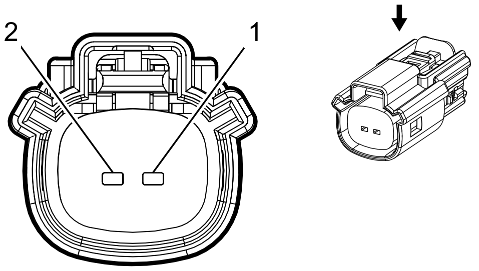
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E28 Center Console Compartment Lamp*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | WH/BN | 6815 | Inadvertent Power Control | I | — |
| 2 | 0.75 | BK | 1050 | Ground | I | — |
| 3 | — | — | — | Not Occupied | — | — |

## E29LF Fog Lamp - Left Front (UD5)



### Connector Part Information

Harness Type: Front Bumper

OEM Connector: 13782480

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 150 MX Series, Sealed (BK)

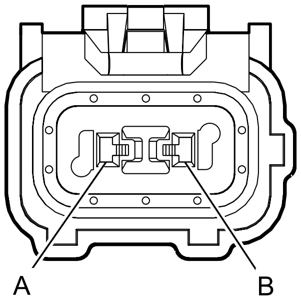
### *Terminal Part Information*

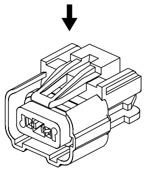
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E29LF Fog Lamp - Left Front (UD5)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BN/VT | 2234 | Front Fog Lamp Control | I | — |
| 2 | 0.5 | BK | 150 | Ground | I | — |

# E29LF Fog Lamp - Left Front (-UD5)





## Connector Part Information

Harness Type: Front Bumper

OEM Connector: 15489797

Service Connector: Service by Harness - See Part Catalog

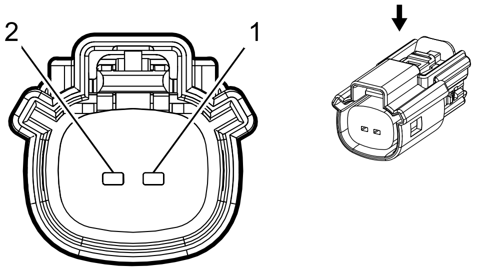
Description: 2-Way F 150 Series (BK)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E29LF Fog Lamp - Left Front (-UD5)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | BN/VT | 2234 | Front Fog Lamp Control | I | — |
| B | 0.5 | BK | 150 | Ground | I | — |



## Connector Part Information

Harness Type: Front Bumper

OEM Connector: 13782480

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 150 MX Series, Sealed (BK)

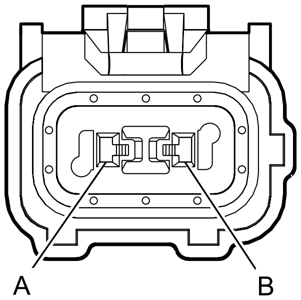
## *Terminal Part Information*

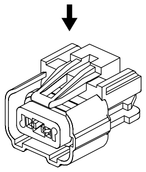
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E29RF Fog Lamp - Right Front (UD5)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BN/VT | 2234 | Front Fog Lamp Control | I | — |
| 2 | 0.5 | BK | 250 | Ground | I | — |

## E29RF Fog Lamp - Right Front (-UD5)





## Connector Part Information

Harness Type: Front Bumper

OEM Connector: 15489797

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 150 Series (BK)

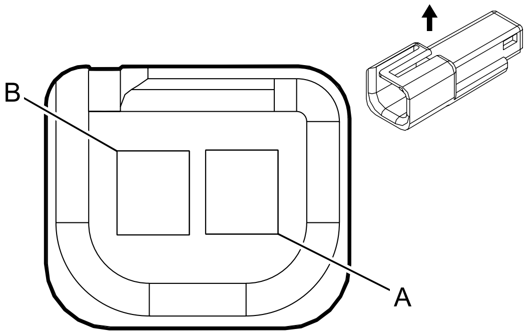
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E29RF Fog Lamp - Right Front (-UD5)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | BN/VT | 2234 | Front Fog Lamp Control | I | — |
| B | 0.5 | BK | 250 | Ground | I | — |

# E31L Sunshade Mirror Lamp - Left



## Connector Part Information

Harness Type: Headliner

OEM Connector: 12047663

Service Connector: 13584278

Description: 2-Way M 150 Metri-Pack Series (BK)

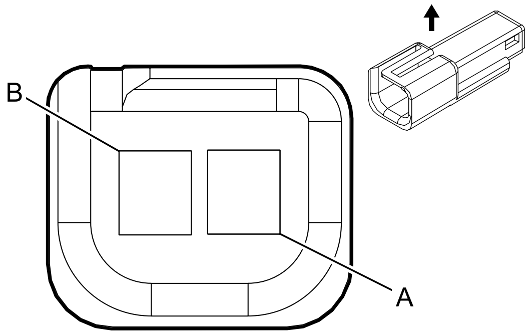
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E31L Sunshade Mirror Lamp - Left*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | WH/BN | 6815 | Inadvertent Power Control | I | — |
| B | 0.5 | BK | 1050 | Ground | I | — |

## E31R Sunshade Mirror Lamp - Right



### Connector Part Information

Harness Type: Headliner

OEM Connector: 12047663

Service Connector: 13584278

Description: 2-Way M 150 Metri-Pack Series (BK)

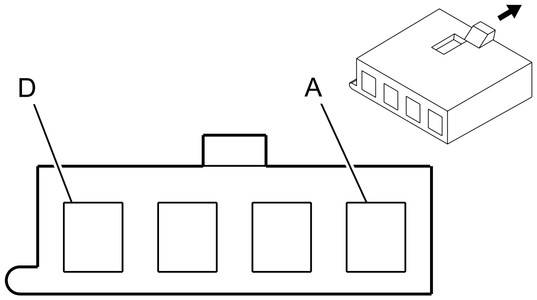
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E31R Sunshade Mirror Lamp - Right*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | WH/BN | 6815 | Inadvertent Power Control | I | — |
| B | 0.5 | BK | 1050 | Ground | I | — |

## E37B Dome/Reading Lamps - 2nd Row



### Connector Part Information

Harness Type: Headliner

OEM Connector: 12092162

Service Connector: 15306021

Description: 4-Way F 150 Metri-Pack Series (BK)

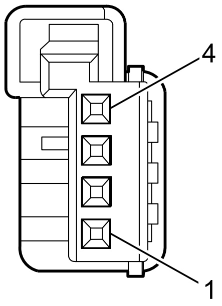
### *Terminal Part Information*

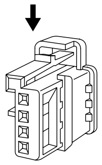
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *E37B Dome/Reading Lamps - 2nd Row*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | WH/BN | 6815 | Inadvertent Power Control | I | — |
| B | 0.5 | BK | 1050 | Ground | I | — |
| C | 0.5 | GY | 157 | Interior Lamp Control | I | — |
| D | 0.5 | YE | 6817 | LED Backlight Dimming Control | I | — |

# E37EL Dome/Reading Lamps - Front Overhead Console Left





## Connector Part Information

Harness Type: Overhead Console

OEM Connector: 10812166

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 0.64 Micro-Quadlock Series (GY)

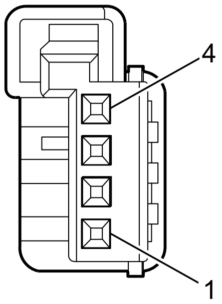
## *Terminal Part Information*

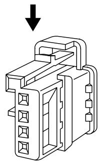
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E37EL Dome/Reading Lamps - Front Overhead Console Left*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | YE | 6817 | LED Backlight Dimming Control | I | — |
| 2 | 0.5 | WH/BN | 6815 | Inadvertent Power Control | I | — |
| 3 | 0.5 | GY | 157 | Interior Lamp Control | I | — |
| 4 | 0.5 | BK | 1050 | Ground | I | — |

## E37ER Dome/Reading Lamps - Front Overhead Console Right





## Connector Part Information

Harness Type: Overhead Console

OEM Connector: 10812166

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 0.64 Micro-Quadlock Series (GY)

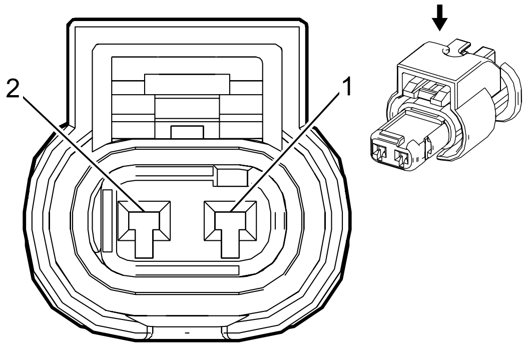
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *E37ER Dome/Reading Lamps - Front Overhead Console Right*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | YE | 6817 | LED Backlight Dimming Control | I | — |
| 2 | 0.5 | WH/BN | 6815 | Inadvertent Power Control | I | — |
| 3 | 0.5 | GY | 157 | Interior Lamp Control | I | — |
| 4 | 0.5 | BK | 1050 | Ground | I | — |

# F101 Passenger Instrument Panel Air Bag



## Connector Part Information

Harness Type: Instrument Panel Extension

OEM Connector: 13863037

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 1.2 MCP Series, Sealed (YE)

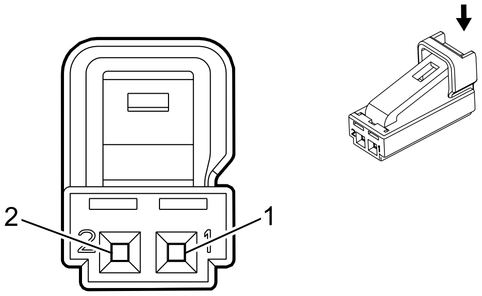
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *F101 Passenger Instrument Panel Air Bag*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | YE/OG | 3025 | Passenger IP Module Stage 1 High Control | I | — |
| 2 | 0.35 | OG/WH | 3024 | Passenger IP Module Stage 1 Low Control | I | — |

## F102 Hybrid/EV Battery Pack Cable Cover



## Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 10865735

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 0.64 Micro-Quadlock Series (BK)

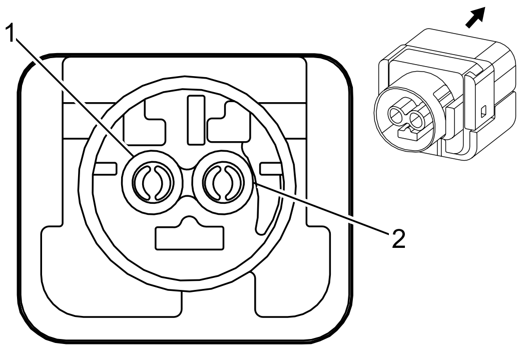
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *F102 Hybrid/EV Battery Pack Cable Cover*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT | 5087 | High Voltage Interlock Loop Signal 1 | I | — |
| 2 | 0.5 | BK/BN | 5088 | High Voltage Interlock Loop Low Reference 1 | I | — |

# F106D Seat Side Air Bag - Driver



## Connector Part Information

Harness Type: Driver Seat Back Jumper

OEM Connector: PPI0001142

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F FPB 180-1 Series (BK with YE Cover)

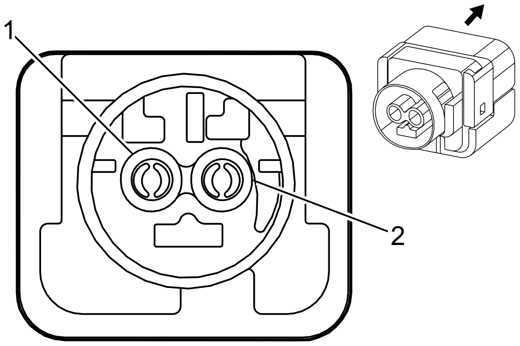
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *F106D Seat Side Air Bag - Driver*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/L-BU | 3068 | Driver Side Impact Module High Control | I | — |
| 2 | 0.5 | L-GN/OG | 3069 | Driver Side Impact Module Low Control | I | — |

## F106P Seat Side Air Bag - Passenger



### Connector Part Information

Harness Type: Passenger Seat Back

OEM Connector: PPI0001142

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F FPB 180-1 Series (BK with YE Cover)

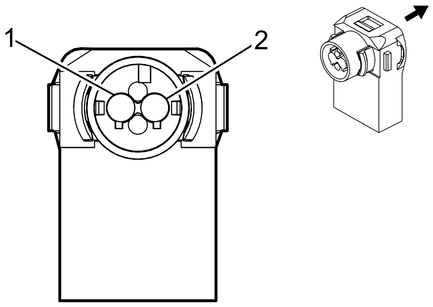
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *F106P Seat Side Air Bag - Passenger*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/GY | 3066 | Passenger Side Impact Module High Control | I | — |
| 2 | 0.5 | BN/OG | 3067 | Passenger Side Impact Module Low Control | I | — |

## F112D Seat Belt Retractor Pretensioner - Driver (Crew Cab)



### Connector Part Information

Harness Type: Body

OEM Connector: 33154433

Service Connector: 19354083

Description: 2-Way F 1.0 MAC Series (PU with YE Cover)

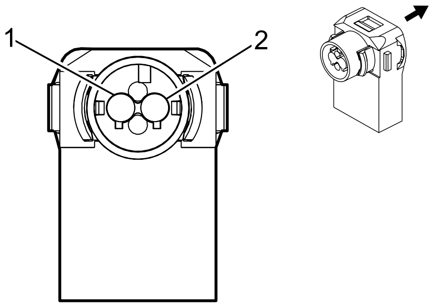
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *F112D Seat Belt Retractor Pretensioner - Driver (Crew Cab)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | 3477 | Driver Seat Belt Retractor Pretensioner High Control | I | — |
| 2 | — | — | 3478 | Driver Seat Belt Retractor Pretensioner Low Control | I | — |

# F112D Seat Belt Retractor Pretensioner - Driver (Extended Cab)



## Connector Part Information

Harness Type: Body

OEM Connector: 33154433

Service Connector: 19354083

Description: 2-Way F 1.0 MAC Series (PU with YE Cover)

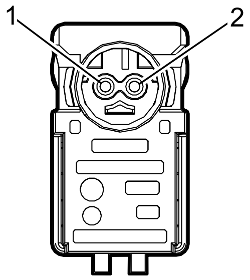
## *Terminal Part Information*

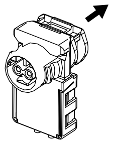
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *F112D Seat Belt Retractor Pretensioner - Driver (Extended Cab)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | 3477 | Driver Seat Belt Retractor Pretensioner High Control | I | — |
| 2 | — | — | 3478 | Driver Seat Belt Retractor Pretensioner Low Control | I | — |

## F112D Seat Belt Retractor Pretensioner - Driver (Regular Cab)





### Connector Part Information

Harness Type: Body

OEM Connector: 988530061

Service Connector: 19119345

Description: 2-Way F AK-2 Series (BK with YE Cover)

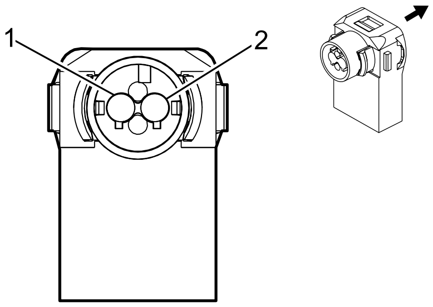
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *F112D Seat Belt Retractor Pretensioner - Driver (Regular Cab)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | 3477 | Driver Seat Belt Retractor Pretensioner High Control | I | — |
| 2 | — | — | 3478 | Driver Seat Belt Retractor Pretensioner Low Control | I | — |

## F112P Seat Belt Retractor Pretensioner - Passenger (Crew Cab)



### Connector Part Information

Harness Type: Body

OEM Connector: 33154433

Service Connector: 19354083

Description: 2-Way F 1.0 MAC Series (PU with YE Cover)

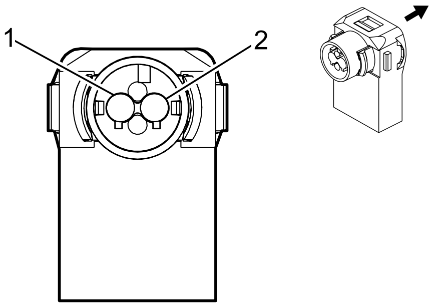
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *F112P Seat Belt Retractor Pretensioner - Passenger (Crew Cab)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | 3475 | Passenger Seat Belt Retractor Pretensioner High Control | I | — |
| 2 | — | — | 3476 | Passenger Seat Belt Retractor Pretensioner Low Control | I | — |

# F112P Seat Belt Retractor Pretensioner - Passenger (Extended Cab)



## Connector Part Information

Harness Type: Body

OEM Connector: 33154433

Service Connector: 19354083

Description: 2-Way F 1.0 MAC Series (PU with YE Cover)

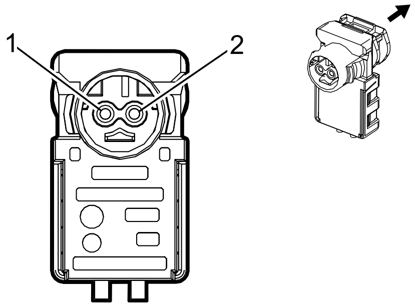
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *F112P Seat Belt Retractor Pretensioner - Passenger (Extended Cab)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | 3475 | Passenger Seat Belt Retractor Pretensioner High Control | I | — |
| 2 | — | — | 3476 | Passenger Seat Belt Retractor Pretensioner Low Control | I | — |

## F112P Seat Belt Retractor Pretensioner - Passenger (Regular Cab)



### Connector Part Information

Harness Type: Body

OEM Connector: 988530061

Service Connector: 19119345

Description: 2-Way F AK-2 Series (BK with YE Cover)

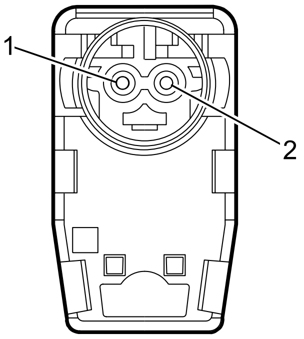
### *Terminal Part Information*

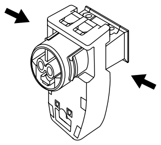
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *F112P Seat Belt Retractor Pretensioner - Passenger (Regular Cab)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | 3475 | Passenger Seat Belt Retractor Pretensioner High Control | I | — |
| 2 | — | — | 3476 | Passenger Seat Belt Retractor Pretensioner Low Control | I | — |

## F113D Seat Belt Anchor Pretensioner - Driver





### Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: PPI0001721

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 0.64 Series, Sealed (BK with YE Cover)

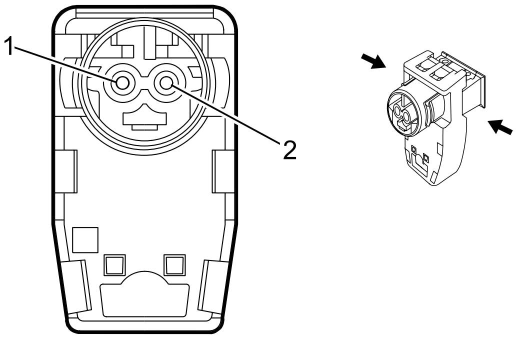
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *F113D Seat Belt Anchor Pretensioner - Driver*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/YE | 3481 | Driver Seat Belt Anchor Pretensioner High Control | I | — |
| 2 | 0.5 | YE/OG | 3482 | Driver Seat Belt Anchor Pretensioner Low Control | I | — |

## F113P Seat Belt Anchor Pretensioner - Passenger



### Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: PPI0001721

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 0.64 Series, Sealed (BK with YE Cover)

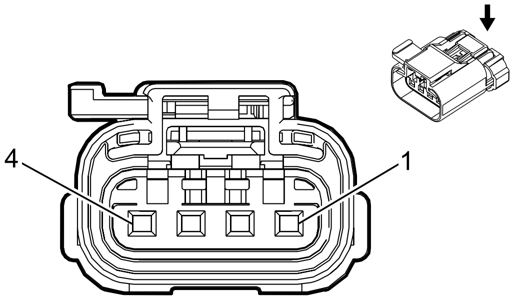
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *F113P Seat Belt Anchor Pretensioner - Passenger*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/BN | 3479 | Passenger Seat Belt Anchor Pretensioner High Control | I | — |
| 2 | 0.5 | GY/OG | 3480 | Passenger Seat Belt Anchor Pretensioner Low Control | I | — |

# G10L Cooling Fan Motor - Left



## Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33234266

Service Connector: 19354081

Description: 4-Way F 2.8 APEX Series, Sealed (BK)

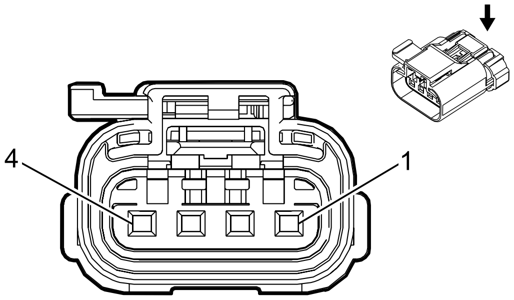
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *G10L Cooling Fan Motor - Left*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 4 | BK | 150 | Ground | I | — |
| 2 | 4 | RD/WH | 342 | Battery Positive Voltage | I | — |
| 4 | 0.5 | BN/YE | 473 | High Speed Cooling Fan Relay Control | I | — |

## G10R Cooling Fan Motor - Right



### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33234266

Service Connector: 19354081

Description: 4-Way F 2.8 APEX Series, Sealed (BK)

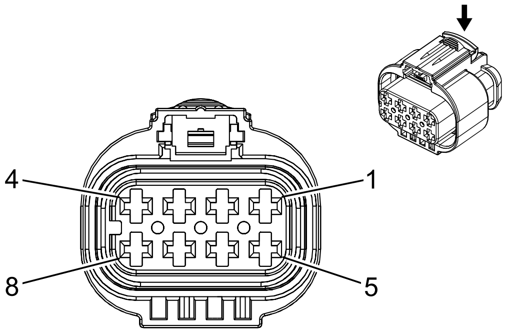
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *G10R Cooling Fan Motor - Right*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 4 | BK | 250 | Ground | I | — |
| 2 | 4 | RD/GY | 642 | Battery Positive Voltage | I | — |
| 4 | 0.5 | BN/YE | 473 | High Speed Cooling Fan Relay Control | I | — |

## G12A Fuel Pump - Primary



### Connector Part Information

Harness Type: Chassis

OEM Connector: 33180742

Service Connector: 19354078

Description: 8-Way F 2.8 Series, Sealed (L-GY)

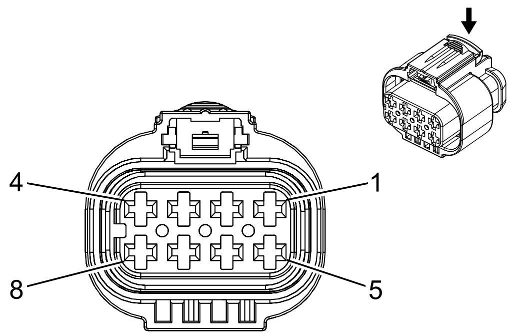
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *G12A Fuel Pump - Primary*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | GY | 120 | Fuel Pump Control | I | — |
| 2 | 2.5 | YE/GY | 4137 | Fuel Pump Supply Voltage Phase 2 | I | — |
| 3 | 2.5 | WH/BN | 4138 | Fuel Pump Supply Voltage Phase 3 | I | — |
| 4 | 0.5 | BK | 7444 | Fuel System Control Module Shield Ground | I | — |
| 5 | 0.5 | D-BU/VT | 1589 | Primary Fuel Level Sensor Signal | I | — |
| 6 | 0.5 | BK/L-GN | 6281 | Fuel Level Sensor Low Reference | I | — |
| 7 - 8 | — | — | — | Not Occupied | — | — |

## G12B Fuel Pump - Secondary (L5P)



### Connector Part Information

Harness Type: Chassis

OEM Connector: 33180742

Service Connector: 19354078

Description: 8-Way F 2.8 Series, Sealed (L-GY)

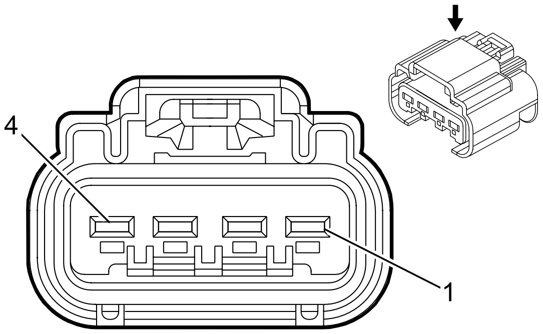
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *G12B Fuel Pump - Secondary (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | GY | 120 | Fuel Pump Control | I | — |
| 2 | 2.5 | YE/GY | 4137 | Fuel Pump Supply Voltage Phase 2 | I | — |
| 3 | 2.5 | WH/BN | 4138 | Fuel Pump Supply Voltage Phase 3 | I | — |
| 4 | 0.5 | BK | 7444 | Fuel System Control Module Shield Ground | I | — |
| 5 | 0.5 | D-BU/VT | 1589 | Primary Fuel Level Sensor Signal | I | — |
| 6 | 0.5 | BK/L-GN | 6281 | Fuel Level Sensor Low Reference | I | — |
| 7 - 8 | — | — | — | Not Occupied | — | — |

## G12B Fuel Pump - Secondary (L96)



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13527865

Service Connector: 13587174

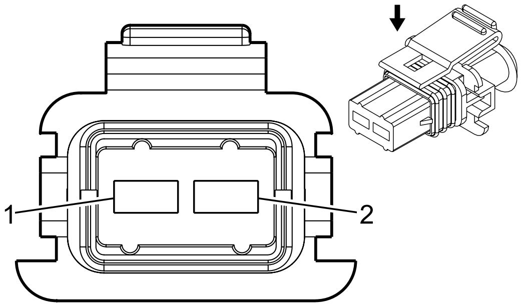
Description: 4-Way F 280 GT Series, Sealed (NA)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *G12B Fuel Pump - Secondary (L96)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | GY | 120 | Fuel Pump Control | I | — |
| 2 | 2.5 | BK/L-GN | 1580 | Fuel Pump Low Reference | I | N2L |
|  | 2.5 | BK | 2150 | Ground | I | N2N |
| 3 | 0.5 | BK/L-GN | 6281 | Fuel Level Sensor Low Reference | I | — |
| 4 | 0.5 | D-BU/WH | 1937 | Secondary Fuel Level Sensor Signal | I | N2N |



## Connector Part Information

Harness Type: Engine

OEM Connector: 12186308

Service Connector: 13585849

Description: 2-Way F Junior Power Timer Series, Sealed (BK)

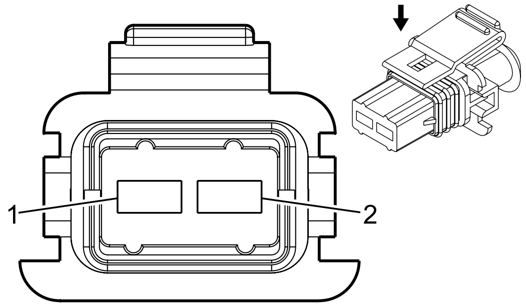
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *G13E Generator - Auxiliary*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | BN | 25 | Charge Indicator Control | I | — |
| 2 | — | — | — | Not Occupied | — | — |

## G13 Generator X1



### Connector Part Information

Harness Type: Engine

OEM Connector: 12186308

Service Connector: 13585849

Description: 2-Way F Junior Power Timer Series, Sealed (BK)

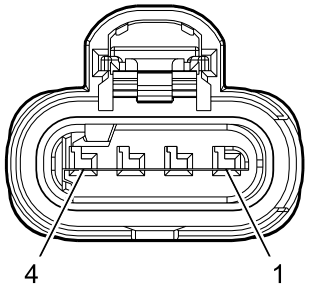
### *Terminal Part Information*

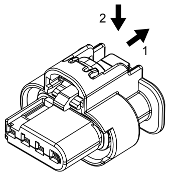
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *G13 Generator X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BN | 25 | Charge Indicator Control | I | 1500 |
|  | 0.75 | BN | 25 | Charge Indicator Control | I | L5P |
|  | 0.5 | BN | 25 | Charge Indicator Control | II | L96/LC8 |
| 2 | 0.5 | GY | 23 | Generator Field Duty Cycle Signal | II | L96/LC8 |
|  | 0.5 | GY | 23 | Generator Field Duty Cycle Signal | I | -L96/LC8 |

# G14 Hybrid/EV Battery Pack Cooling Fan





## Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 33150389

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 1.2 MCON-CB Series, Sealed (BK)

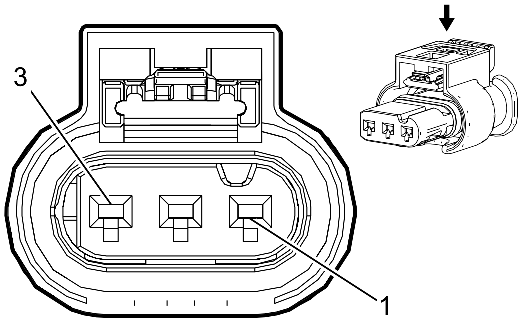
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *G14 Hybrid/EV Battery Pack Cooling Fan*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/D-BU | 6276 | Fan Speed Sensor Low Reference | I | — |
| 2 | 0.35 | YE/L-GN | 5598 | Fan Speed Signal 1 | I | — |
| 3 | 0.35 | D-BU/VT | 5599 | Fan Speed Signal 2 | I | — |
| 4 | 0.5 | BN/WH | 6277 | Fan Speed Sensor Control | I | — |

## G17 Heater Coolant Pump (L8B)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13663390

Service Connector: 13574937

Description: 3-Way F 1.2 Multilock Series, Sealed (BK)

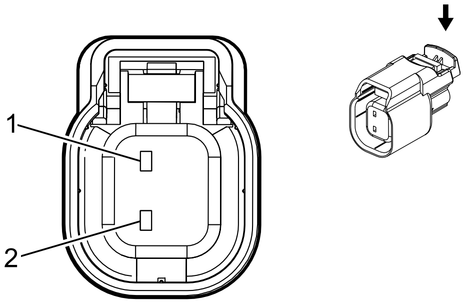
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-13 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *G17 Heater Coolant Pump (L8B)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | BK | 550 | Ground | I | — |
| 2 | 0.5 | YE/D-BU | 5126 | After Boil Heater Pump Control | I | — |
| 3 | — | — | — | Not Occupied | — | — |

# G18 High Pressure Fuel Pump



## Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 34062-4008

Service Connector: 19352068

Description: 2-Way F 1.5 Series, Sealed (BK)

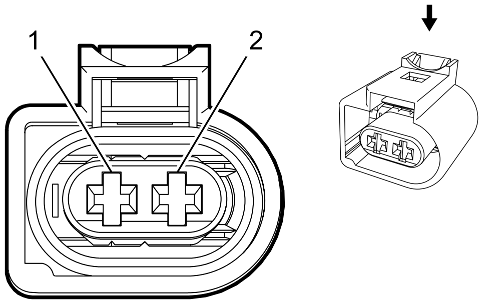
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *G18 High Pressure Fuel Pump*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | BK/YE | 2834 | Fuel Rail Pressure Solenoid Low Reference | I | L5P |
| 2 | 0.75 | BU/WH | 2530 | Fuel Rail Pressure Solenoid Control | I | L5P |

## G24 Windshield Washer Pump



### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 10863916

Service Connector: 13576532

Description: 2-Way F 2.8 MDK5 Series, Sealed (BK)

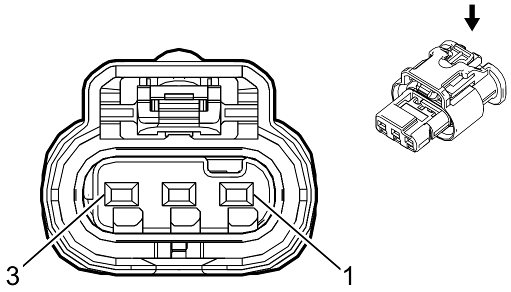
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *G24 Windshield Washer Pump*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | GY/VT | 228 | Windshield Washer Pump Control | I | — |
| 2 | 0.75 | BK | 150 | Ground | I | — |

## G43 Starter/Generator Coolant Pump



### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13868589

Service Connector: 19329387

Description: 3-Way F 1.2 MCP Series, Sealed (BN)

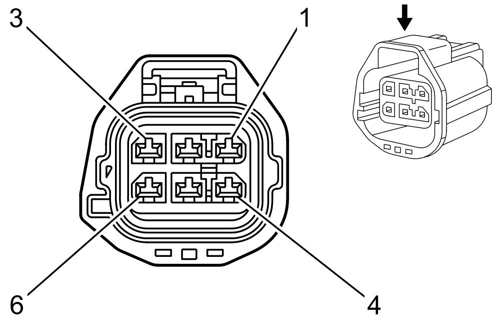
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *G43 Starter/Generator Coolant Pump*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 1 | BK | 250 | Ground | I | — |
| 2 | 0.5 | GY/D-BU | 3769 | MGU Coolant Pump Control | I | — |
| 3 | 0.5 | VT/D-BU | 3790 | Electric Coolant Motor Feedback Signal | I | — |

## K4 Assist Step Control Module X1



### Connector Part Information

Harness Type: Chassis

OEM Connector: 15342659

Service Connector: 88988393

Description: 6-Way F 2.8 Series, Sealed (D-GY)

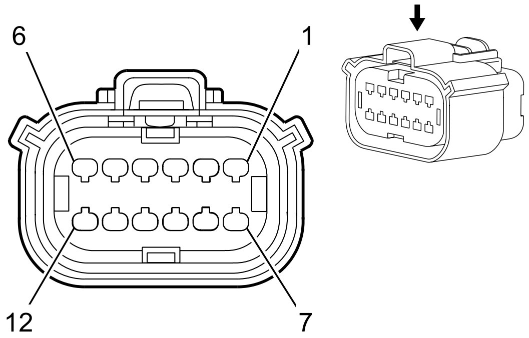
### Terminal Part Information

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### K4 Assist Step Control Module X1

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2 | L-GN | 7469 | Articulating Running Boards Motor Right Control Retract | I | — |
| 2 | 2.5 | BK | 2150 | Ground | I | — |
| 3 | 2 | WH/BN | 7471 | Articulating Running Boards Motor Left Control Extend | I | — |
| 4 | 2 | D-BU | 7470 | Articulating Running Boards Motor Right Control Extend | I | — |
| 5 | 2.5 | RD/YE | 1142 | Battery Positive Voltage | I | — |
| 6 | 2 | GY | 7472 | Articulating Running Boards Motor Left Control Retract | I | — |

# K4 Assist Step Control Module X2



## Connector Part Information

Harness Type: Chassis

OEM Connector: 13653762

Service Connector: 13503528

Description: 12-Way F 1.5 Series, Sealed (BK)

## *Terminal Part Information*

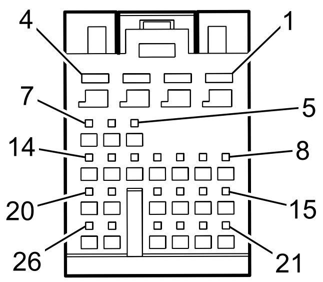
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

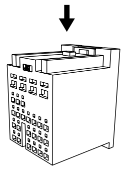
## *K4 Assist Step Control Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/RD | 7468 | Running Boards Motor Hall Sensor Left 5V Reference | I | — |
| 2 | 0.5 | L-GN/RD | 7464 | Running Boards Motor Hall Sensor Right 5V Reference | I | — |
| 3 | 0.5 | YE | 7467 | Running Boards Motor Hall Sensor Left Signal | I | — |
| 4 | 0.5 | VT | 7465 | Running Boards Motor Hall Sensor Right Signal | I | — |
| 5 | 0.5 | YE/BN | 7466 | Running Boards Motor Hall Sensor Left Low Reference | I | — |
| 6 | 0.5 | YE/BK | 7463 | Running Boards Motor Hall Sensor Right Low Reference | I | — |
| 7 | 0.5 | BN/WH | 9002 | — | I | — |
| 8 | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | BN/WH | 7462 | Running Boards Disable Signal | I | — |
| 11 | 0.5 | BN/WH | 9001 | — | I | — |
| 12 | 0.5 | BN/WH | 9000 | — | I | — |

## K9 Body Control Module X1





## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13943345

Service Connector: 13582966

Description: 26-Way F 0.64, 2.8 Series (NA)

## *Terminal Part Information*

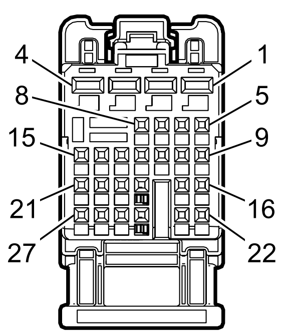
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575871 | J-35616-35 (VT) | J-38125-12A | SNAC-A061T-M2.8 | Delphi 20 | C | A |
| II | 13575871 | J-35616-35 (VT) | J-38125-12A | SNAC-A061T-M2.8 | Delphi 20 | E | A |
| III | 13582297 | J-35616-64B (LT BU) | J-38125-22 | Not Available | Not Available | Not Available | Not Available |

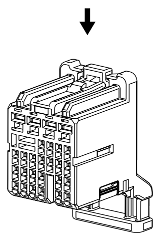
## *K9 Body Control Module X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | BK | 1850 | Ground | II | — |
| 2 | 0.75 | RD/D-BU | 2540 | Battery Positive Voltage | II | — |
| 3 | 1 | RD/GY | 2140 | Battery Positive Voltage | I | — |
| 4 | 0.5 | RD/BN | 2240 | Battery Positive Voltage | II | — |
| 5 | 0.5 | WH | 6816 | Indicator Dimming Control | III | — |
| 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.35 | BK/YE | 5005 | Instrument Panel Lamp Dimmer Switch Low Reference | III | — |
| 8 - 9 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 - 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | D-BU/VT | 1134 | Park Brake Switch Signal | III | — |
| 11 | 0.35 | L-GN/BN | 306 | Headlamp Switch Headlamps Off Signal Control | III | — |
| 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.35 | D-BU/RD | 1688 | 5V Reference | III | — |
| 14 | 0.35 | GY/L-GN | 328 | Interior Lamp Defeat Switch Signal | III | — |
| 15 | 0.35 | D-BU/GY | 192 | Front Fog Lamp Switch Signal | III | — |
| 16 | 0.35 | WH/VT | 103 | Headlamp Switch On Signal | III | — |
| 17 - 18 | — | — | — | Not Occupied | — | — |
| 19 | 0.35 | BK/L-GN | 552 | Sensor Low Reference | III | — |
| 20 | — | — | — | Not Occupied | — | — |
| 21 | 0.35 | GY | 728 | Security Indicator Control | III | — |
| 22 | 0.35 | L-GN/GY | 13 | Headlamp Switch Park Lamp Signal | III | — |
| 23 | 0.5 | VT/L-GN | 7558 | LED Ambient Lighting Control 2 | III | — |
| 24 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | III | — |
| 25 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | III | — |
| 26 | 0.35 | D-BU/WH | 3275 | Remote Function Actuator Receive Signal | III | — |

# K9 Body Control Module X2





## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13943361

Service Connector: 13576637

Description: 27-Way F 0.64, 2.8 Series (L-BU)

## *Terminal Part Information*

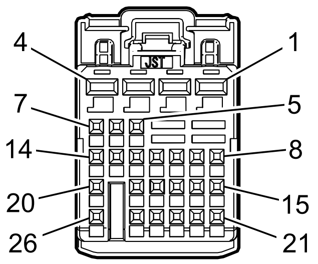
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575871 | J-35616-35 (VT) | J-38125-12A | SNAC-A061T-M2.8 | Delphi 20 | E | A |
| II | 13582297 | J-35616-64B (LT BU) | J-38125-22 | Not Available | Not Available | Not Available | Not Available |

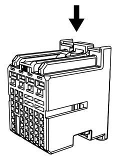
## *K9 Body Control Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | RD/WH | 2740 | Battery Positive Voltage | I | — |
| 2 | 0.75 | BK | 1850 | Ground | I | — |
| 3 | 0.5 | RD/BN | 2940 | Battery Positive Voltage | I | — |
| 4 | 0.75 | RD/VT | 4040 | Battery Positive Voltage | I | — |
| 5 | — | — | — | Not Occupied | — | — |
| 6 | 0.35 | GY | 5697 | Child Lockout Indicator Control | II | — |
| 7 | 0.35 | WH/L-GN | 526 | Stop Lamp Switch Signal | II | — |
| 8 | 0.5 | YE | 6817 | LED Backlight Dimming Control | II | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | 0.35 | YE/GY | 44 | Instrument Panel Lamp Dimmer Switch Signal | II | — |
| 10 | 0.35 | WH/D-BU | 278 | Ambient Light Sensor Signal | II | — |
| 11 - 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.35 | GY/RD | 598 | 5V Reference | II | — |
| 14 | 0.35 | D-BU/VT | 1788 | Traction Control Switch Signal 1 | II | — |
| 15 | 0.35 | BN/WH | 781 | Driver Door Lock Switch Unlock Signal | II | — |
| 16 | 0.35 | GY | 3273 | Remote Function Actuator Low Reference | II | — |
| 17 | — | — | — | Not Occupied | — | — |
| 18 | 0.5 | GY | 158 | Cargo Lamp Switch Signal | II | — |
| 19 | 0.35 | BN/YE | 780 | Driver Door Lock Switch Lock Signal | II | — |
| 20 | 0.5 | WH/D-BU | 3691 | Trailer Brake Apply Signal | II | — |
| 21 | 0.5 | L-GN/GY | 6135 | Local Interconnect Network Serial Data Bus 4 | II | — |
| 22 - 24 | — | — | — | Not Occupied | — | — |
| 25 | 0.35 | GY/WH | 3272 | Remote Function Actuator Control | II | — |
| 26 | 0.35 | L-GN/WH | 111 | Hazard Switch Signal | II | — |
| 27 | 0.35 | YE/L-GN | 3274 | Remote Function Actuator Transmit Signal | II | — |

## K9 Body Control Module X4





### Connector Part Information

Harness Type: Body

OEM Connector: 13962485

Service Connector: 13587579

Description: 26-Way F 0.64, 2.8 Series (BK)

### *Terminal Part Information*

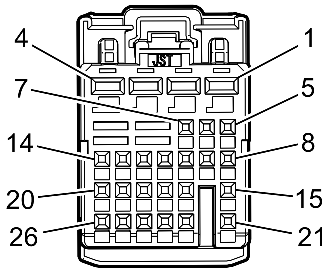
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575871 | J-35616-35 (VT) | J-38125-12A | SNAC-A061T-M2.8 | Delphi 20 | E | A |
| II | 13582297 | J-35616-64B (LT BU) | J-38125-22 | Not Available | Not Available | Not Available | Not Available |

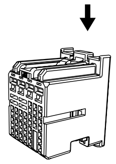
### *K9 Body Control Module X4*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | YE | 712 | Left Headlamp Low Beam Control | I | — |
| 2 | 0.75 | YE | 312 | Right Headlamp Low Beam Control | I | — |
| 3 | 0.75 | L-GN/VT | 1315 | Right Front Turn Signal Lamp Control | I | — |
| 4 | 0.5 | BN/L-GN | 19 | Right Rear Stop/Turn Lamp Control | I | — |
| 5 - 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.75 | GY/D-BU | 7538 | Left Front DRL Control | II | — |
| 8 - 10 | — | — | — | Not Occupied | — | — |
| 11 | 0.5 | VT/WH | 5065 | Stop Lamp Relay Coil Control | II | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 12 | 0.35 | GY/VT | 755 | RAP Relay Coil Control | II | — |
| 13 | 0.5 | L-GN/YE | 6846 | Rear License Lamp Control | II | — |
| 14 | 0.35 | BN/GY | 2268 | Windshield Washer Relay Control | II | — |
| 15 | 0.35 | L-GN/VT | 5199 | Run/Crank Relay Coil Control | II | — |
| 16 | 0.35 | GY | 91 | Windshield Wiper Motor Relay Coil Control | II | — |
| 17 | 0.5 | BN/L-GN | 196 | Windshield Wiper Motor Park Switch Signal | II | — |
| 18 | 0.35 | WH/YE | 5075 | Current Sensor Signal | II | — |
| 19 | 0.35 | D-BU/YE | 6844 | ABS/TCS Hill Descent Control Switch Signal | II | — |
| 20 | 0.75 | RD/YE | 2340 | Battery Positive Voltage | II | — |
| 21 | 0.35 | D-BU/VT | 5076 | Current Sensor Control | II | — |
| 22 | 0.35 | VT/YE | 5985 | Accessory Wakeup Serial Data | II | — |
| 23 | 0.5 | WH/D-BU | 5986 | Serial Data Communication Enable | II | — |
| 24 | 0.5 | BN/L-GN | 109 | Hood Ajar Switch Signal | II | — |
| 25 | 0.5 | L-GN/YE | 2081 | Exhaust Brake Switch Control | II | — |
| 26 | 0.75 | BK/WH | 451 | Signal Ground | II | — |

## K9 Body Control Module X5





### Connector Part Information

Harness Type: Body

OEM Connector: 13962299

Service Connector: 13587577

Description: 26-Way F 0.64, 2.8 Series (BN)

### *Terminal Part Information*

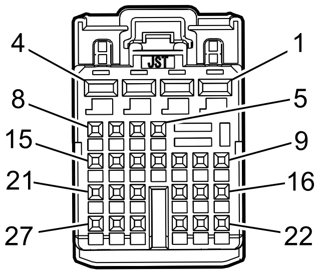
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575871 | J-35616-35 (VT) | J-38125-12A | SNAC-A061T-M2.8 | Delphi 20 | E | A |
| II | 13582297 | J-35616-64B (LT BU) | J-38125-22 | Not Available | Not Available | Not Available | Not Available |

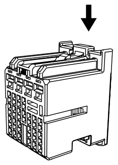
### *K9 Body Control Module X5*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/D-BU | 18 | Left Rear Stop/Turn Lamp Control | I | — |
| 2 | 0.75 | D-BU/WH | 1314 | Left Front Turn Signal Lamp Control | I | — |
| 3 | 0.75 | RD/L-GN | 5140 | Battery Positive Voltage | I | — |
| 4 | 0.75 | RD/WH | 3440 | Battery Positive Voltage | I | — |
| 5 | — | — | — | Not Occupied | — | — |
| 6 | 0.35 | BK/VT | 5077 | Current Sensor Low Reference | II | — |
| 7 | 0.75 | D-BU/BN | 7539 | Right Front DRL Control | II | — |
| 8 | 0.35 | D-BU/WH | 5186 | Left Trailer Turn Signal Lamp Control | II | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | BN | 1317 | Fog Lamp Relay Control | II | — |
| 11 | — | — | — | Not Occupied | — | — |
| 12 | 0.35 | WH/D-BU | 6311 | Cruise/ETC/TCC Brake Signal | II | — |
| 13 | — | — | — | Not Occupied | — | — |
| 14 | 0.35 | VT/BN | 300 | Run Ignition 3 Voltage | II | — |
| 15 | 0.35 | L-GN/WH | 3438 | Exhaust Brake Switch Signal | II | — |
| 16 | 0.35 | VT/YE | 3267 | Child Security Lock Relay Control | II | — |
| 17 | 0.35 | YE/GY | 5187 | Right Trailer Turn Signal Lamp Control | II | — |
| 18 | 0.35 | BN/VT | 1969 | Headlamp High Beam Relay Control | II | — |
| 19 | 0.35 | BN/WH | 28 | Horn Relay Control | II | — |
| 20 - 21 | — | — | — | Not Occupied | — | — |
| 22 | 0.35 | D-BU | 45 | Park Lamp Relay Control | II | — |
| 23 | 0.35 | YE | 6812 | Out of Park Signal | II | — |
| 24 | 0.35 | WH/VT | 860 | Front Windshield Wiper Switch High Signal | II | — |
| 25 | — | — | — | Not Occupied | — | — |
| 26 | 0.35 | D-BU/BN | 38 | Backup Lamp Relay Control | II | — |

## K9 Body Control Module X6





### Connector Part Information

Harness Type: Body

OEM Connector: 13962300

Service Connector: 13587576

Description: 27-Way F 0.64, 2.8 Series (L-PU)

### *Terminal Part Information*

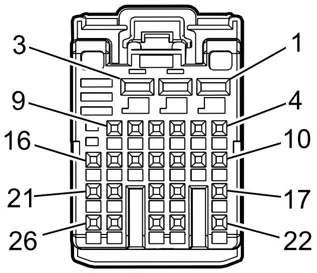
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575871 | J-35616-35 (VT) | J-38125-12A | SNAC-A061T-M2.8 | Delphi 20 | C | A |
| II | 13575871 | J-35616-35 (VT) | J-38125-12A | SNAC-A061T-M2.8 | Delphi 20 | E | A |
| III | 13582297 | J-35616-64B (LT BU) | J-38125-22 | Not Available | Not Available | Not Available | Not Available |

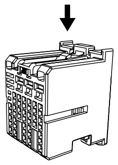
### *K9 Body Control Module X6*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 1.5 | D-BU/WH | 195 | Door Lock Control | I | — |
| 2 | 1.5 | GY/L-GN | 3271 | Door Lock Control 2 | I | — |
| 3 | 1.5 | BK | 1850 | Ground | I | — |
| 4 | 1.5 | BN/YE | 294 | Door Lock Actuator Unlock Control | I | EXTENDED/CREW CAB |
| | 0.75 | BN/YE | 294 | Door Lock Actuator Unlock Control | II | REGULAR CAB |
| 5 | — | — | — | Not Occupied | — | — |
| 6 | 0.35 | D-BU/VT | 1124 | Door Lock Key Switch Unlock Signal | III | — |
| 7 - 8 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | 0.5 | L-GN/D-BU | 6133 | Local Interconnect Network Serial Data Bus 2 | III | — |
| 10 | 0.5 | L-GN/YE | 6134 | Local Interconnect Network Serial Data Bus 3 | III | — |
| 11 | — | — | — | Not Occupied | — | — |
| 12 | 0.5 | YE/BK | 5356 | Left Tail Lamp Outage Detection Signal | III | — |
| 13 - 20 | — | — | — | Not Occupied | — | — |
| 21 | 0.35 | WH/VT | 3270 | Driver Door Lock Motor Status Signal | III | — |
| 22 | 0.5 | VT/YE | 5357 | Right Tail Lamp Outage Detection Signal | III | — |
| 23 | — | — | — | Not Occupied | — | — |
| 24 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | III | — |
| 25 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | III | — |
| 26 | 0.5 | BN/WH | 1429 | Standing Lamp Relay Control | III | — |
| 27 | — | — | — | Not Occupied | — | — |

## K9 Body Control Module X7





### Connector Part Information

Harness Type: Body

OEM Connector: 13962301

Service Connector: 13587578

Description: 26-Way F 0.64, 2.8 Series (L-GY)

### *Terminal Part Information*

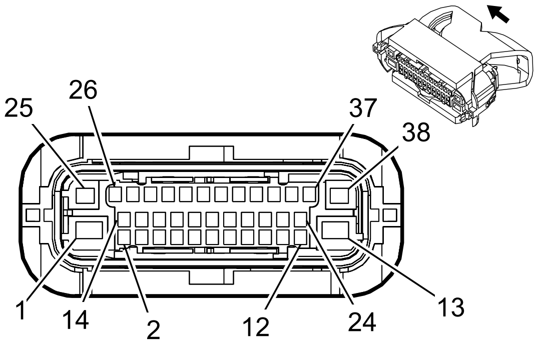
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575871 | J-35616-35 (VT) | J-38125-12A | SNAC-A061T-M2.8 | Delphi 20 | E | A |
| II | 13582297 | J-35616-64B (LT BU) | J-38125-22 | Not Available | Not Available | Not Available | Not Available |

### *K9 Body Control Module X7*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY | 157 | Interior Lamp Control | I | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | WH/BN | 6815 | Inadvertent Power Control | I | — |
| 4 - 5 | — | — | — | Not Occupied | — | — |
| 6 | 0.35 | YE/WH | 816 | Brake Transmission Shift Interlock Solenoid Control | II | — |
| 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.5 | GY/L-GN | 5996 | Driver Outside Rear View Mirror Puddle Lamp Control | II | — |
| 9 | 0.5 | YE | 6817 | LED Backlight Dimming Control | II | — |
| 10 - 11 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12 | 0.35 | BN/WH | 3269 | Child Security Lock Motor Status Signal Left Rear | II | — |
| 13 | — | — | — | Not Occupied | — | — |
| 14 | 0.35 | GY | 746 | Right Front Door Ajar Switch Signal | II | — |
| 15 | 0.35 | YE/BN | 3265 | Child Security Lock Switch Signal | II | — |
| 16 | 0.5 | WH/D-BU | 3691 | Trailer Brake Apply Signal | II | — |
| 17 | — | — | — | Not Occupied | — | — |
| 18 | 0.35 | GY/BK | 3268 | Child Security Lock Motor Status Signal Right Rear | II | — |
| 19 | 0.35 | GY | 156 | Courtesy Lamp Switch Signal | II | — |
| 20 | — | — | — | Not Occupied | — | — |
| 21 | 0.35 | YE/VT | 244 | Passenger Door Lock Switch Lock Control | II | — |
| 22 | 0.35 | WH/YE | 7557 | LED Ambient Lighting Control 1 | II | — |
| 23 | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | II | — |
| 24 | 0.35 | BN/VT | 245 | Passenger Door Lock Switch Unlock Control | II | — |
| 25 | 0.35 | GY | 745 | Left Front Door Ajar Switch Signal | II | -A31 |
| | 0.35 | L-GN | 4512 | Wireless Charging System Charge Indicator Control | II | K4C |
| 26 | — | — | — | Not Occupied | — | — |

## K17 Electronic Brake Control Module (Heavy Duty)



### Connector Part Information

Harness Type: Chassis

OEM Connector: 33102987

Service Connector: 19329396

Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575368 | J-35616-35 (VT) | J-38125-557 | 1-968857-3 | Lear 7 | C | 1 |
| II | 19119381 | J-35616-14 (GN) | J-38125-215A | Not Available | Not Available | Not Available | Not Available |
| III | 19119560 | J-35616-40 (BU) | J-38125-556 | 1241408-1 | Lear 28 | B | G |
| IV | 19329757 | J-35616-14 (GN) | J-38125-215A | Not Available | Not Available | Not Available | Not Available |

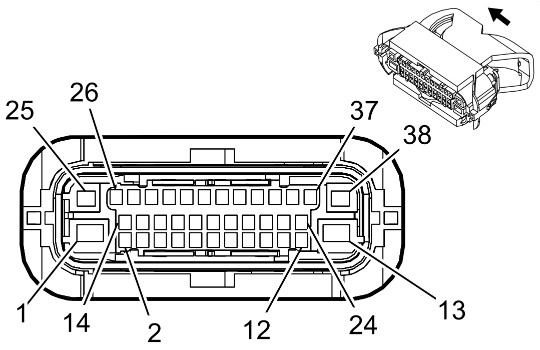
### *K17 Electronic Brake Control Module (Heavy Duty)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 5 | RD/YE | 442 | Battery Positive Voltage | III | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | GY/YE | 7128 | Wheel Speed Sensor Control Right Rear | II | — |
| 4 | 0.5 | VT | 882 | Wheel Speed Sensor Signal Right Rear | II | — |
| 5 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | II | — |
| 6 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | II | — |
| 7 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | — |
| 9 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | — |
| 10 | 0.5 | GY/BN | 7065 | Wheel Speed Sensor Control Right Front | II | — |
| 11 | 0.5 | YE | 872 | Wheel Speed Sensor Signal Right Front | II | — |
| 12 | — | — | — | Not Occupied | — | — |
| 13 | 5 | BK | 2150 | Ground | III | — |
| 14 - 16 | — | — | — | Not Occupied | — | — |
| 17 | 0.5 | L-GN/BN | 2087 | Combined Vehicle Inertial Sensor Supply Voltage | IV | — |
| 18 | 0.5 | L-GN/GY | 333 | Brake Fluid Level Sensor Signal | II | — |
| 19 | — | — | — | Not Occupied | — | — |
| 20 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | — |
| 21 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | — |
| 22 - 24 | — | — | — | Not Occupied | — | — |
| 25 | 2.5 | RD/VT | 1640 | Battery Positive Voltage | I | — |
| 26 - 27 | — | — | — | Not Occupied | — | — |
| 28 | 0.5 | WH/D-BU | 5986 | Serial Data Communication Enable | II | — |
| 29 | 0.5 | GY/BK | 7127 | Wheel Speed Sensor Control Left Rear | II | — |
| 30 | 0.5 | D-BU | 884 | Wheel Speed Sensor Signal Left Rear | II | — |
| 31 - 32 | — | — | — | Not Occupied | — | — |
| | | | | | | |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 33 | 0.5 | L-GN/GY | 817 | Vehicle Speed Signal | II | — |
| 34 | — | — | — | Not Occupied | — | — |
| 35 | 0.5 | GY/WH | 7064 | Wheel Speed Sensor Control Left Front | II | — |
| 36 | 0.5 | GY | 830 | Wheel Speed Sensor Signal Left Front | II | — |
| 37 | — | — | — | Not Occupied | — | — |
| 38 | 2.5 | BK | 2150 | Ground | I | — |

## K17 Electronic Brake Control Module (Light Duty)



### Connector Part Information

Harness Type: Chassis

OEM Connector: 13655518

Service Connector: 19303771

Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK with BN Inner Connector)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575368 | J-35616-35 (VT) | J-38125-557 | 1-968857-3 | Lear 7 | C | 1 |
| II | 19119381 | J-35616-14 (GN) | J-38125-215A | Not Available | Not Available | Not Available | Not Available |
| III | 19119560 | J-35616-40 (BU) | J-38125-556 | 1241408-1 | Lear 28 | B | G |
| IV | 19329757 | J-35616-14 (GN) | J-38125-215A | Not Available | Not Available | Not Available | Not Available |

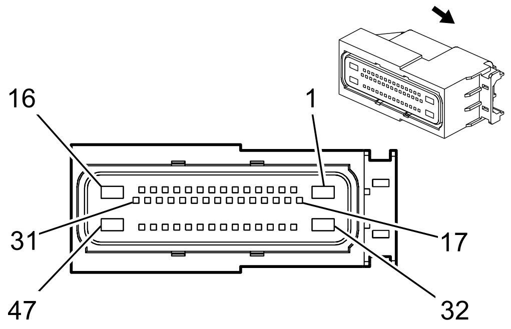
### *K17 Electronic Brake Control Module (Light Duty)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 5 | RD/YE | 442 | Battery Positive Voltage | III | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | GY/YE | 7128 | Wheel Speed Sensor Control Right Rear | II | — |
| 4 | 0.5 | VT | 882 | Wheel Speed Sensor Signal Right Rear | II | — |
| 5 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | II | — |
| 6 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | II | — |
| 7 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | — |
| 9 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | — |
| 10 | 0.5 | GY/BN | 7065 | Wheel Speed Sensor Control Right Front | II | — |
| 11 | 0.5 | YE | 872 | Wheel Speed Sensor Signal Right Front | II | — |
| 12 | — | — | — | Not Occupied | — | — |
| 13 | 5 | BK | 2150 | Ground | III | — |
| 14 - 16 | — | — | — | Not Occupied | — | — |
| 17 | 0.5 | L-GN/BN | 2087 | Combined Vehicle Inertial Sensor Supply Voltage | IV | — |
| 18 | 0.5 | L-GN/GY | 333 | Brake Fluid Level Sensor Signal | II | — |
| 19 | 0.5 | BN | 6305 | Brake Vacuum Switch Signal | II | — |
| 20 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | — |
| 21 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | — |
| 22 - 23 | — | — | — | Not Occupied | — | — |
| 24 | 0.5 | BK/YE | 6032 | Brake Vacuum Sensor Low Reference | II | — |
| 25 | 2.5 | RD/VT | 1640 | Battery Positive Voltage | I | — |
| 26 - 27 | — | — | — | Not Occupied | — | — |
| 28 | 0.5 | WH/D-BU | 5986 | Serial Data Communication Enable | II | — |
| 29 | 0.5 | GY/BK | 7127 | Wheel Speed Sensor Control Left Rear | II | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 30 | 0.5 | D-BU | 884 | Wheel Speed Sensor Signal Left Rear | II | — |
| 31 | — | — | — | Not Occupied | — | — |
| 32 | 0.5 | YE/RD | 6031 | Brake Vacuum Sensor 5V Reference | II | — |
| 33 | 0.5 | L-GN/GY | 817 | Vehicle Speed Signal | II | — |
| 34 | 0.5 | YE/VT | 6030 | Brake Vacuum Sensor Signal | II | — |
| 35 | 0.5 | GY/WH | 7064 | Wheel Speed Sensor Control Left Front | II | — |
| 36 | 0.5 | GY | 830 | Wheel Speed Sensor Signal Left Front | II | — |
| 37 | — | — | — | Not Occupied | — | — |
| 38 | 2.5 | BK | 2150 | Ground | I | — |

## K19 Suspension Control Module



### Connector Part Information

Harness Type: Chassis

OEM Connector: 15491306

Service Connector: 19168025

Description: 47-Way F 0.64, 6.3 Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13578883 | J-35616-64B (LT BU) | J-38125-215A | SAITS-A03T-M064 | Yazaki 14 | 9 | 9 |
| II | 13579754 | J-35616-42 (RD) | J-38125-553 | 15476168 | Delphi 5 | F | 3 |
| III | 13579754 | J-35616-42 (RD) | J-38125-553 | Not Available | Not Available | Not Available | Not Available |
| IV | 13579755 | J-35616-42 (RD) | J-38125-553 | 15476168 | Delphi 5 | F | 3 |
| V | 13579766 | J-35616-64B (LT BU) | J-38125-215A | SAITS-A03T-M064 | Yazaki 14 | 9 | 9 |

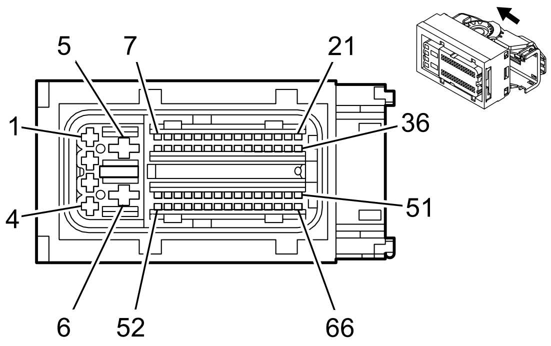
### *K19 Suspension Control Module*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | — | Not Occupied | — | — |
| 2 | 0.5 | BK/L-GN | 1209 | Left Rear Strut Position Sensor Low Reference | I | — |
| 3 | 0.5 | YE/WH | 1213 | Right Front Strut Position Sensor Signal | I | — |
| 4 | — | — | — | Not Occupied | — | — |
| 5 | 0.5 | BK/YE | 1215 | Right Rear Strut Position Sensor Low Reference | I | — |
| 6 | 0.5 | BN/WH | 1207 | Left Front Strut Position Sensor Signal | I | — |
| 7 - 11 | — | — | — | Not Occupied | — | — |
|  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 12 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | I | — |
| 13 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | I | — |
| 14 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | I | — |
| 15 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | I | — |
| 16 | 0.75 | WH/D-BU | 5986 | Serial Data Communication Enable | III | — |
| 17 | 0.5 | L-GN/WH | 1210 | Left Rear Strut Position Sensor Signal | I | — |
| 18 | 0.5 | BK/GY | 1212 | Right Front Strut Position Sensor Low Reference | I | — |
| 19 | — | — | — | Not Occupied | — | — |
| 20 | 0.5 | L-GN/GY | 1216 | Right Rear Strut Position Sensor Signal | I | — |
| 21 | 0.5 | BK/D-BU | 1206 | Left Front Strut Position Sensor Low Reference | I | — |
| 22 - 23 | — | — | — | Not Occupied | — | — |
| 24 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 25 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 26 | — | — | — | Not Occupied | — | — |
| 27 | 0.75 | BN | 1009 | Right Front Strut Motor Decrease Damping Control | V | — |
| 28 | 0.75 | WH/BK | 1006 | Right Front Strut Motor Increase Damping Control | V | — |
| 29 | — | — | — | Not Occupied | — | — |
| 30 | 0.75 | WH/L-GN | 1005 | Left Front Strut Motor Decrease Damping Control | V | — |
|  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 31 | 0.75 | WH/GY | 1448 | Left Front Strut Motor Increase Damping Control | V | — |
| 32 | 3 | RD/L-GN | 2440 | Battery Positive Voltage | II | — |
| 33 | 0.5 | YE/RD | 1208 | Left Rear Strut Position Sensor 5V Reference | I | — |
| 34 | 0.5 | BN/RD | 1211 | Right Front Strut Position Sensor 5V Reference | I | — |
| 35 | 0.5 | L-GN/RD | 1214 | Right Rear Strut Position Sensor 5V Reference | I | — |
| 36 | 0.5 | D-BU/RD | 1205 | Left Front Strut Position Sensor 5V Reference | I | — |
| 37 - 38 | — | — | — | Not Occupied | — | — |
| 39 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 40 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 41 | — | — | — | Not Occupied | — | — |
| 42 | 0.75 | WH/BK | 1013 | Left Rear Strut Motor Decrease Damping Control | V | — |
| 43 | 0.75 | BN/VT | 1010 | Left Rear Strut Motor Increase Damping Control | V | — |
| 44 | — | — | — | Not Occupied | — | — |
| 45 | 0.75 | VT | 1017 | Right Rear Strut Motor Decrease Damping Control | V | — |
| 46 | 0.75 | YE | 1014 | Right Rear Strut Motor Increase Damping Control | V | — |
| 47 | 4 | BK | 1750 | Ground | IV | — |

# K20 Engine Control Module X1 (L5P)



## Connector Part Information

Harness Type: Engine

OEM Connector: 13647470

Service Connector: 19181736

Description: 66-Way F 0.64, 2.8, 6.3 Series, Sealed

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13584448 | J-35616-64B (LT BU) | J-38125-12A | 1719532-5 | Lear 7 | J | J |
| II | 13584528 | J-35616-42 (RD) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| III | 13584529 | J-35616-42 (RD) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| IV | 19353294 | J-35616-4A (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| V | 19354085 | J-35616-4A (PU) | J-38125-36 | 4-964286-1 | Lear 16 | E | 1 |

## *K20 Engine Control Module X1 (L5P)*

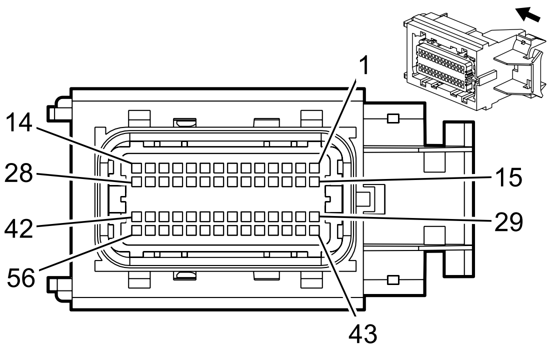
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | VT/D-BU | 5290 | Powertrain Main Relay Fused Supply 1 | V | — |
| 2 | 0.5 | VT/D-BU | 5290 | Powertrain Main Relay Fused Supply 1 | IV | — |
| 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.5 | RD/BN | 440 | Battery Positive Voltage | IV | — |
| 5 | 2.5 | VT/D-BU | 5290 | Powertrain Main Relay Fused Supply 1 | II | — |
| 6 | 4 | D-BU/WH | 451 | Signal Ground | III | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 7 | 0.5 | VT/YE | 5985 | Accessory Wakeup Serial Data | I | — |
| 8 | 0.5 | WH/GY | 1786 | Transmission Park/Neutral Signal 1 | I | — |
| 9 | 0.5 | GY/BK | 1694 | Four Wheel Drive Low Signal | I | — |
| 10 | 0.5 | L-GN/WH | 492 | Mass Air Flow Sensor Signal | I | — |
| 11 | 0.5 | D-BU/GY | 636 | Outside Ambient Air Temperature Sensor Signal | I | — |
| 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.5 | WH/RD | 1164 | Accelerator Pedal Position 5V Reference 1 | I | — |
| 14 | 0.5 | BN/RD | 1274 | Accelerator Pedal Position 5V Reference 2 | I | — |
| 15 | 0.5 | L-GN/WH | 1162 | Accelerator Pedal Position Signal 2 | I | — |
| 16 | 0.5 | BK/VT | 1272 | Accelerator Pedal Position Low Reference 2 | I | — |
| 17 - 20 | — | — | — | Not Occupied | — | — |
| 21 | 0.5 | YE | 2928 | Fuel Metering Valve High Control | I | — |
| 22 | — | — | — | Not Occupied | — | — |
| 23 | 0.5 | YE/WH | 1695 | Four Wheel Drive Wheel Lock Indicator Control | I | — |
| 24 | 0.5 | WH/D-BU | 6311 | Cruise/ETC/TCC Brake Signal | I | — |
| 25 | 0.5 | BN/GY | 4008 | Humidity Sensor Signal | I | — |
| 26 | 0.5 | BK/D-BU | 61 | Outside Ambient Temperature Sensor Low Reference | I | — |
| 27 | 0.5 | BK/D-BU | 1271 | Accelerator Pedal Position Low Reference 1 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 28 | 0.5 | YE/WH | 1161 | Accelerator Pedal Position Signal 1 | I | — |
| 29 - 32 | — | — | — | Not Occupied | — | — |
| 33 | 0.5 | BN/WH | 419 | Check Engine Indicator Control | I | — |
| 34 | 0.5 | L-GN/BN | 507 | Wait To Start Indicator Control | I | — |
| 35 | 0.5 | WH/GY | 459 | A/C Compressor Clutch Relay Control | I | — |
| 36 | 0.5 | BN/BK | 2929 | Fuel Metering Valve Low Control | I | — |
| 37 - 38 | — | — | — | Not Occupied | — | — |
| 39 | 0.5 | WH | 4499 | High Speed GMLAN Serial Data (-) 7 | I | — |
| 40 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 41 - 42 | — | — | — | Not Occupied | — | — |
| 43 | 0.5 | BK/BN | 5360 | Brake Apply Sensor Low Reference | I | — |
| 44 | 0.5 | WH | 5359 | Brake Apply Sensor Control | I | — |
| 45 | 0.5 | WH/D-BU | 6289 | Induction Air Temperature Sensor Signal | I | — |
| 46 | 0.5 | BN/RD | 2700 | A/C Pressure Sensor 5V Reference | I | — |
| 47 | 0.5 | L-GN | 380 | A/C Refrigerant Pressure Sensor Signal | I | — |
| 48 | 0.5 | BK/BN | 5514 | A/C Refrigerant Pressure Sensor Low Reference | I | — |
| 49 | 0.5 | WH/BN | 1089 | Coolant Pump Motor Relay Control | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 50 | 0.5 | WH/BK | 2366 | Cooling Fan Control Relay Speed Signal | I | — |
| 51 | 0.5 | YE | 5991 | Powertrain Relay Coil Control | I | — |
| 52 - 53 | — | — | — | Not Occupied | — | — |
| 54 | 0.5 | D-BU/BN | 4498 | High Speed GMLAN Serial Data (+) 7 | I | — |
| 55 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 56 - 58 | — | — | — | Not Occupied | — | — |
| 59 | 0.5 | D-BU/YE | 5361 | Brake Apply Sensor Signal | I | — |
| 60 | 0.5 | BK/VT | 2760 | Intake Air Temperature Sensor Low Reference | I | — |
| 61 - 63 | — | — | — | Not Occupied | — | — |
| 64 | 0.5 | YE/D-BU | 1465 | Secondary Fuel Pump Relay Control | I | — |
| 65 | 0.5 | YE/BK | 625 | Starter Enable Relay Control | I | — |
| 66 | 0.5 | L-GN/GY | 465 | Fuel Pump Primary Relay Control | I | — |

## K20 Engine Control Module X1 (L96)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13820449

Service Connector: 19329930

Description: 56-Way F 0.64 I Series, Sealed (BK with BU Terminal Position Assurance)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575812 | J-35616-64B (LT BU) | J-38125-213 | Not Available | Not Available | Not Available | Not Available |

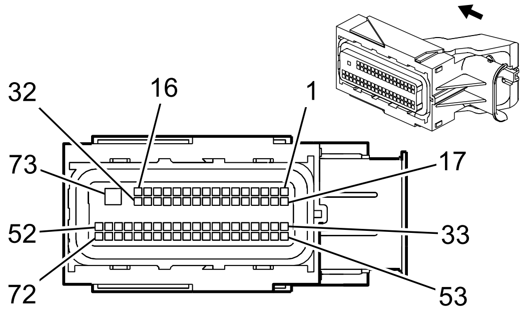
### *K20 Engine Control Module X1 (L96)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | — | Not Occupied | — | — |
| 2 | 0.5 | L-GN/WH | 1162 | Accelerator Pedal Position Signal 2 | I | — |
| 3 | 0.5 | L-GN/WH | 492 | Mass Air Flow Sensor Signal | I | — |
| 4 | 0.5 | GY/BK | 1694 | Four Wheel Drive Low Signal | I | — |
| 5 | 0.5 | YE/WH | 1695 | Four Wheel Drive Wheel Lock Indicator Control | I | — |
| 6 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.5 | GY/D-BU | 7564 | Humidity Sensor Signal | I | — |
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | YE/WH | 1161 | Accelerator Pedal Position Signal 1 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 11 | 0.5 | YE/WH | 3200 | Throttle Inlet Absolute Pressure Sensor Signal | I | — |
| 12 | 0.5 | L-GN | 380 | A/C Refrigerant Pressure Sensor Signal | I | — |
| 13 | 0.5 | BK/BN | 5514 | A/C Refrigerant Pressure Sensor Low Reference | I | — |
| 14 | 0.5 | YE/D-BU | 1465 | Secondary Fuel Pump Relay Control | I | — |
| 15 | — | — | — | Not Occupied | — | — |
| 16 | 0.5 | BN/RD | 1274 | Accelerator Pedal Position 5V Reference 2 | I | — |
| 17 | — | — | — | Not Occupied | — | — |
| 18 | 0.5 | VT/YE | 5985 | Accessory Wakeup Serial Data | I | — |
| 19 | — | — | — | Not Occupied | — | — |
| 20 | 0.5 | RD/BN | 440 | Battery Positive Voltage | I | — |
| 21 - 23 | — | — | — | Not Occupied | — | — |
| 24 | 0.5 | WH/RD | 1164 | Accelerator Pedal Position 5V Reference 1 | I | — |
| 25 | 0.5 | WH/RD | 3201 | Throttle Inlet Absolute Pressure Sensor 5V Reference | I | — |
| 26 | 0.5 | BN/RD | 2700 | A/C Pressure Sensor 5V Reference | I | — |
| 27 | 0.5 | YE/BK | 625 | Starter Enable Relay Control | I | — |
| 28 | 0.5 | L-GN/GY | 465 | Fuel Pump Primary Relay Control | I | — |
| 29 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 30 | 0.5 | BK/VT | 1272 | Accelerator Pedal Position Low Reference 2 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 31 | 0.5 | BK/VT | 2760 | Intake Air Temperature Sensor Low Reference | I | — |
| 32 | — | — | — | Not Occupied | — | — |
| 33 | 0.5 | WH/D-BU | 6311 | Cruise/ETC/TCC Brake Signal | I | — |
| 34 | 0.5 | WH/GY | 1786 | Transmission Park/Neutral Signal 1 | I | — |
| 35 - 37 | — | — | — | Not Occupied | — | — |
| 38 | 0.5 | BK/D-BU | 1271 | Accelerator Pedal Position Low Reference 1 | I | — |
| 39 | — | — | — | Not Occupied | — | — |
| 40 | 0.5 | YE | 5991 | Powertrain Relay Coil Control | I | — |
| 41 - 42 | — | — | — | Not Occupied | — | — |
| 43 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 44 | — | — | — | Not Occupied | — | — |
| 45 | 0.5 | WH/D-BU | 6289 | Induction Air Temperature Sensor Signal | I | — |
| 46 | — | — | — | Not Occupied | — | — |
| 47 | 0.5 | BN | 25 | Charge Indicator Control | I | — |
| 48 - 51 | — | — | — | Not Occupied | — | — |
| 52 | 0.5 | BN/WH | 419 | Check Engine Indicator Control | I | — |
| 53 | 0.5 | WH/GY | 459 | A/C Compressor Clutch Relay Control | I | — |
| 54 - 55 | — | — | — | Not Occupied | — | — |
| 56 | 0.5 | WH | 1310 | EVAP Canister Vent Solenoid Control | I | — |

## K20 Engine Control Module X1 (LV3/L83/L86/L8B)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13820453

Service Connector: 19260919

Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BU Terminal Position Assurance)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575812 | J-35616-64B (LT BU) | J-38125-213 | Not Available | Not Available | Not Available | Not Available |
| II | 13579770 | J-35616-35 (VT) | J-38125-11A | 7116-4152-02 | Yazaki 9 | A | 5 |

### *K20 Engine Control Module X1 (LV3/L83/L86/L8B)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | — | Not Occupied | — | — |
| 2 | 0.5 | D-BU/WH | 7446 | Fuel Line Pressure Sensor Signal | I | — |
| 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.5 | YE/WH | 3200 | Throttle Inlet Absolute Pressure Sensor Signal | I | — |
| 5 | 0.5 | WH/RD | 3201 | Throttle Inlet Absolute Pressure Sensor 5V Reference | I | — |
| 6 | 0.5 | L-GN | 380 | A/C Refrigerant Pressure Sensor Signal | I | — |
| 7 | 0.5 | YE | 5530 | Hood Open Switch Signal | I | — |
| 8 | 0.5 | BK/YE | 7447 | Fuel Line Pressure Sensor Low Reference | I | — |
|  |  |  |  |  |  |  |

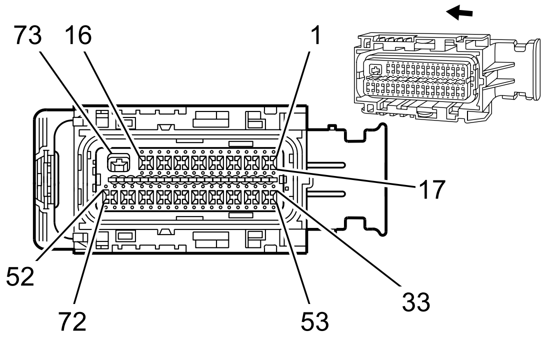
| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | 0.5 | D-BU/WH | 890 | Fuel Tank Pressure Sensor Signal | I | — |
| 10 | 0.5 | YE/RD | 2709 | Fuel Tank Pressure Sensor 5V Reference | I | — |
| 11 - 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.5 | D-BU/GY | 636 | Outside Ambient Air Temperature Sensor Signal | I | — |
| 14 | 0.5 | WH/RD | 1164 | Accelerator Pedal Position 5V Reference 1 | I | — |
| 15 | 0.5 | YE/WH | 1161 | Accelerator Pedal Position Signal 1 | I | — |
| 16 - 20 | — | — | — | Not Occupied | — | — |
| 21 | 0.5 | BN/RD | 2700 | A/C Pressure Sensor 5V Reference | I | — |
| 22 | 0.5 | BK/BN | 5514 | A/C Refrigerant Pressure Sensor Low Reference | I | — |
| 23 | — | — | — | Not Occupied | — | — |
| 24 | 0.5 | BN/RD | 7445 | Fuel Line Pressure Sensor 5V Reference | I | — |
| 25 | 0.5 | D-BU/VT | 1589 | Primary Fuel Level Sensor Signal | I | — |
| 26 | 0.5 | BK/L-GN | 6281 | Fuel Level Sensor Low Reference | I | — |
| 27 - 29 | — | — | — | Not Occupied | — | — |
| 30 | 0.5 | BK/D-BU | 1271 | Accelerator Pedal Position Low Reference 1 | I | — |
| 31 | — | — | — | Not Occupied | — | — |
| 32 | 0.5 | WH/GY | 459 | A/C Compressor Clutch Relay Control | I | — |
| 33 | 0.5 | BN/RD | 1274 | Accelerator Pedal Position 5V Reference 2 | I | — |
| 34 | 0.5 | L-GN/WH | 1162 | Accelerator Pedal Position Signal 2 | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 35 | — | — | — | Not Occupied | — | — |
| 36 | 0.5 | D-BU/BK | 7493 | High Speed GMLAN Serial Data (+)3 | I | — |
| 37 | 0.5 | WH | 7494 | High Speed GMLAN Serial Data (-)3 | I | — |
| 38 | 0.5 | WH | 1579 | Fuel Temperature/Composition Signal | I | — |
| 39 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 40 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 41 | 0.5 | D-BU/WH | 2918 | Fuel Rail Pressure Sensor Signal | I | — |
| 42 - 43 | — | — | — | Not Occupied | — | — |
| 44 | 0.5 | GY | 5660 | Fuel Pump Controller Data Out Signal | I | — |
| 45 | — | — | — | Not Occupied | — | — |
| 46 | 0.5 | BN/WH | 419 | Check Engine Indicator Control | I | — |
| 47 | 0.5<br>0.5 | GY/RD<br>WH | 6109<br>5359 | Clutch Apply Sensor 5V Reference<br>Brake Apply Sensor Control | I<br>I | M2P/MXW<br>MYC |
| 48 | 0.5<br>0.5 | YE<br>D-BU/YE | 6111<br>5361 | Clutch Apply Sensor Signal<br>Brake Apply Sensor Signal | I<br>I | M2P/MXW<br>MYC |
| 49 - 50 | — | — | — | Not Occupied | — | — |
| 51 | 0.5 | VT/L-GN | 439 | Run/Crank Ignition 1 Voltage | I | — |
| 52 | 0.5 | RD/BN | 440 | Battery Positive Voltage | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 53 | 0.5 | BK/VT | 1272 | Accelerator Pedal Position Low Reference 2 | I | — |
| 54 | 0.5 | L-GN/VT | 4621 | Local Interconnect Network Serial Data Bus 21 | I | — |
| 55 - 56 | — | — | — | Not Occupied | — | — |
| 57 | 0.5 | WH/D-BU | 6311 | Cruise/ETC/TCC Brake Signal | I | — |
| 58 | — | — | — | Not Occupied | — | — |
| 59 | 0.5 | BN/YE | 473 | High Speed Cooling Fan Relay Control | I | — |
| 60 | 0.5 | YE/WH | 1695 | Four Wheel Drive Wheel Lock Indicator Control | I | — |
| 61 | 0.5 | GY/BK | 1694 | Four Wheel Drive Low Signal | I | — |
| 62 | 0.75 | VT/D-BU | 5291 | Powertrain Main Relay Fused Supply 2 | I | — |
| 63 | 0.5 | YE/BK | 625 | Starter Enable Relay Control | I | — |
| 64 - 65 | — | — | — | Not Occupied | — | — |
| 66 | 0.5 | WH | 1310 | EVAP Canister Vent Solenoid Control | I | — |
| 67 | 0.75 | VT/D-BU | 5292 | Powertrain Main Relay Fused Supply 3 | I | — |
| 68 | 0.5 | BK/GY | 6110 | Clutch Apply Sensor Low Reference | I | M2P/MXW |
|  | 0.5 | BK/BN | 5360 | Brake Apply Sensor Low Reference | I | MYC |
| 69 | — | — | — | Not Occupied | — | — |
| 70 | 0.5 | VT/YE | 5985 | Accessory Wakeup Serial Data | I | — |
| 71 | — | — | — | Not Occupied | — | — |
| 72 | 0.5 | YE | 5991 | Powertrain Relay Coil Control | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 73 | 2.5 | VT/D-BU | 5290 | Powertrain Main Relay Fused Supply 1 | II | — |

# K20 Engine Control Module X2 (L83 with MYC except NQH/NQG)



## Connector Part Information

Harness Type: Engine

OEM Connector: 33157043

Service Connector: 19301191

Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BK Terminal Position Assurance)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575812 | J-35616-64B (LT BU) | J-38125-213 | 33467-0003 | Delphi 23 | J | J |
| II | 13579770 | J-35616-35 (VT) | J-38125-11A | 7116-4152-02 | Yazaki 9 | A | 5 |

## *K20 Engine Control Module X2 (L83 with MYC except NQH/NQG)*

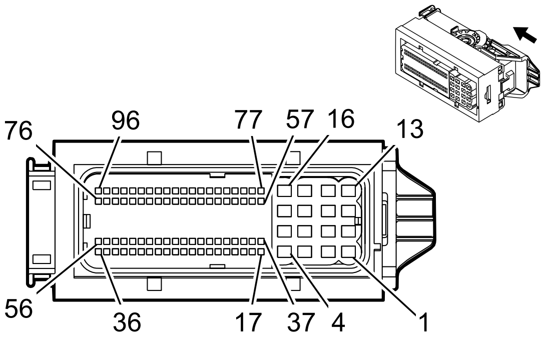
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | BK/L-GN | 2919 | Fuel Rail Pressure Sensor Low Reference | I | — |
| 4 | — | — | — | Not Occupied | — | — |
| 5 | 0.5 | GY/BK | 3096 | Output Speed (Digital) Sensor 5V Reference | I | — |
| 6 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.5 | L-GN | 3098 | Output Speed (Digital) Signal | I | — |
|  | 0.5 | BN/WH | 6354 | Output Speed High (Replicated TOS) Input Signal | I | — |
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | VT/GY | 3110 | Heated Oxygen Sensor High Signal Bank 1 Sensor 1 | I | — |
| 11 | 0.5 | VT/WH | 3210 | Heated Oxygen Sensor High Signal Bank 2 Sensor 1 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 11 | 0.5 | VT/WH | 3210 | Heated Oxygen Sensor High Signal Bank 2 Sensor 1 | I | — |
| 12 | 0.5 | VT/D-BU | 3120 | Heated Oxygen Sensor High Signal Bank 1 Sensor 2 | I | — |
| 13 | 0.5 | VT/L-GN | 3220 | Heated Oxygen Sensor High Signal Bank 2 Sensor 2 | I | — |
| 14 | — | — | — | Not Occupied | — | — |
| 15 | 0.5 | GY/D-BU | 7564 | Humidity Sensor Signal | I | — |
| 16 | 0.5 | BN/WH | 582 | Throttle Actuator Control Close | I | — |
| 17 | — | — | — | Not Occupied | — | — |
| 18 | 0.5 | BN/RD | 2917 | Fuel Rail Pressure Sensor 5V Reference | I | — |
| 19 | 0.5 | D-BU/WH | 2918 | Fuel Rail Pressure Sensor Signal | I | — |
| 20 | — | — | — | Not Occupied | — | — |
| 21 | 0.5 | WH/BK | 3097 | Output Speed (Digital) Sensor Low Reference | I | — |
| 22 | — | — | — | Not Occupied | — | — |
| 23 | 0.5 | L-GN/WH | 5007 | Reverse Switch Signal | I | — |
| 24 - 25 | — | — | — | Not Occupied | — | — |
| 26 | 0.5 | WH/BK | 3111 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 1 | I | — |
| 27 | 0.5 | YE/WH | 3211 | Heated Oxygen Sensor Low Signal Bank 2 Sensor 1 | I | — |
| 28 | 0.5 | WH/YE | 3121 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 2 | I | — |
| 29 | 0.5 | YE/D-BU | 3221 | Heated Oxygen Sensor Low Signal Bank 2 Sensor 2 | I | — |
| 30 - 31 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 32 | 0.5 | YE | 581 | Throttle Actuator Control Open | I | — |
| 33 | — | — | — | Not Occupied | — | — |
| 34 | 0.5 | BN/RD | 2701 | Throttle Position Sensor 5V Reference | I | — |
| 35 | — | — | — | Not Occupied | — | — |
| 36 | 0.75 | VT/GY | 496 | Knock Sensor Signal 1 | I | — |
| 37 | 0.75 | WH/GY | 1876 | Knock Sensor Signal 2 | I | — |
| 38 - 39 | — | — | — | Not Occupied | — | — |
| 40 | 0.5 | VT/D-BU | 6091 | Crankshaft Position Sensor Replicated Signal | I | — |
| 41 | 0.5 | GY/WH | 3113 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1 | I | — |
| 42 | 0.5 | GY/WH | 3122 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2 | I | — |
| 43 | 0.5 | L-GN/WH | 432 | Manifold Absolute Pressure Sensor Signal | I | — |
| 44 | 0.5 | GY/RD | 2704 | Manifold Absolute Pressure Sensor 5V Reference | I | — |
| 45 - 48 | — | — | — | Not Occupied | — | — |
| 49 | 0.5 | WH/D-BU | 6289 | Induction Air Temperature Sensor Signal | I | — |
| 50 | — | — | — | Not Occupied | — | — |
| 51 | 0.5 | L-GN/D-BU | 428 | EVAP Canister Purge Solenoid Control | I | — |
| 52 | 0.5 | L-GN/WH | 492 | Mass Air Flow Sensor Signal | I | — |
| 53 | 0.5 | BN | 25 | Charge Indicator Control | I | — |
| 54 | 0.5 | BK/BN | 2752 | Throttle Position Sensor Low Reference | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 55 | 0.5 | GY | 23 | Generator Field Duty Cycle Signal | I | — |
| 56 | 0.75 | BK/YE | 1716 | Knock Sensor Low Reference 1 | I | — |
| 57 | 0.75 | BK/GY | 2303 | Knock Sensor Low Reference 2 | I | — |
| 58 | 0.5 | WH/GY | 1786 | Transmission Park/Neutral Signal 1 | I | — |
| 59 | 0.5 | D-BU | 179 | Oil Pump Command Signal | I | — |
| 60 | 0.5 | BN/L-GN | 1174 | Oil Level Switch Signal | I | — |
| 61 | 0.5 | L-GN/YE | 3212 | Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1 | I | — |
| 62 | 0.5 | WH/BN | 3223 | Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 2 | I | — |
| 63 | 0.5 | BK/L-GN | 469 | Manifold Absolute Pressure Sensor Low Reference | I | — |
| 64 | — | — | — | Not Occupied | — | — |
| 65 | 0.5 | BK/D-BU | 61 | Outside Ambient Temperature Sensor Low Reference | I | — |
| 66 - 68 | — | — | — | Not Occupied | — | — |
| 69 | 0.5 | WH/YE | 3202 | Throttle Inlet Absolute Pressure Sensor Low Reference | I | — |
| 70 | 0.5 | D-BU/WH | 3630 | Throttle Position Sensor (SENT1) Signal | I | — |
| 71 - 72 | — | — | — | Not Occupied | — | — |
| 73 | 2.5 | BK/WH | 451 | Signal Ground | II | — |

## K20 Engine Control Module X2 (L5P)



### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 33237908

Service Connector: 13586128

Description: 96-Way F 0.64 MTS-B, 2.8 ATS Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13584448 | J-35616-64B (LT BU) | J-38125-12A | 1719532-5 | Lear 7 | J | J |
| II | 13584530 | J-35616-4A (PU) | J-38125-36 | 4-964286-1 | Lear 16 | E | 1 |

### *K20 Engine Control Module X2 (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | VT/GN | 4806 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 6 | II | L5P |
| 2 | 0.75 | YE/GY | 4807 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 7 | II | L5P |
| 3 | 0.75 | GY/BU | 4804 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 4 | II | L5P |
| 4 | 0.75 | BN | 4801 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 1 | II | L5P |
| 5 | 0.75 | VT/GY | 4906 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6 | II | L5P |
| 6 | 0.75 | WH/YE | 4907 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 7 | II | L5P |
| 7 | 0.75 | BU/WH | 4904 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4 | II | L5P |

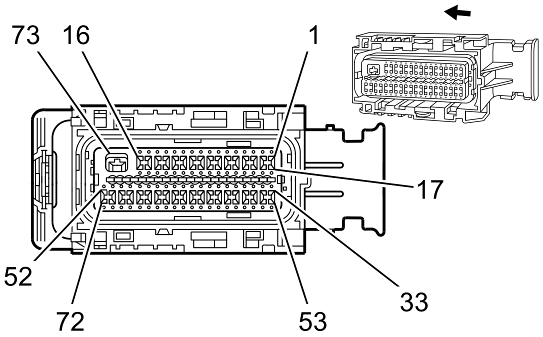
|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 8 | 0.75 | BN/WH | 4901 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1 | II | L5P |
| 9 | 0.75 | GN/GY | 4903 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3 | II | L5P |
| 10 | 0.75 | GY/WH | 4908 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 8 | II | L5P |
| 11 | 0.75 | GN/WH | 4905 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5 | II | L5P |
| 12 | 0.75 | BU/GY | 4902 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2 | II | L5P |
| 13 | 0.75 | GN | 4803 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 3 | II | L5P |
| 14 | 0.75 | GY | 4808 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 8 | II | L5P |
| 15 | 0.75 | WH/GN | 4805 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 5 | II | L5P |
| 16 | 0.75 | BU | 4802 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 2 | II | L5P |
| 17 | 0.5 | BK/VT | 2755 | Oil Pressure Sensor Low Reference | I | L5P |
| 18 | 0.5 | YE/BN | 331 | Oil Pressure Sensor Signal | I | L5P |
| 19 | 0.5 | WH/RD | 2705 | Oil Pressure Sensor 5V Reference | I | L5P |
| 20 | 0.5 | BU/RD | 2702 | Exhaust Gas Recirculation 5V Reference 2 | I | L5P |
| 21 | 0.5 | BN/WH | 5763 | Exhaust Gas Recirculation Valve Sensor Signal | I | L5P |
| 22 | 0.5 | BK/BN | 2753 | Exhaust Gas Recirculation Sensor Low Reference | I | L5P |
| 23 | — | — | — | Not Occupied | — | — |
| 24 | 0.5 | BN/YE | 2161 | Fuel Rail Pressure Sensor 2 Signal | I | L5P |

| | | | | | | |
|---|---|---|---|---|---|---|
| 25 | — | — | — | Not Occupied | — | — |
| 26 | 0.5 | BN | 7348 | Induction Air Temperature Sensor 2 Signal | I | L5P |
| 27 - 29 | — | — | — | Not Occupied | — | — |
| 30 | 0.5 | BU | 410 | Engine Coolant Temperature Sensor Signal | I | L5P |
| 31 | 0.5 | BN | 25 | Charge Indicator Control | I | L5P |
| 32 - 36 | — | — | — | Not Occupied | — | — |
| 37 | 0.5 | BK/GN | 5301 | Camshaft Position Intake Sensor Low Reference 1 | I | L5P |
| 38 | 0.5 | YE/VT | 5275 | Camshaft Position Intake Sensor 1 | I | L5P |
| 39 | 0.5 | GY/BU | 5300 | Camshaft Position Intake Sensor Control 1 | I | L5P |
| 40 | 0.5 | VT/RD | 3652 | EGR Cooler Bypass Position Sensor 5V Reference | I | L5P |
| 41 | 0.5 | GN/GY | 3654 | EGR Cooler Bypass Position Sensor Signal | I | L5P |
| 42 | 0.5 | BK/BU | 3653 | EGR Cooler Bypass Position Sensor Low Reference | I | L5P |
| 43 | 0.5 | BK/BN | 2752 | Throttle Position Sensor Low Reference | I | L5P |
| 44 | 0.5 | BU/WH | 3630 | Throttle Position Sensor (SENT1) Signal | I | L5P |
| 45 | 0.5 | BN/RD | 2701 | Throttle Position Sensor 5V Reference | I | L5P |
| 46 - 49 | — | — | — | Not Occupied | — | — |
| 50 | 0.5 | BK/BN | 2761 | Coolant Temperature Sensor Low Reference | I | L5P |
| 51 | 0.5 | GY | 23 | Generator Field Duty Cycle Signal | I | L5P |

| | | | | | | |
|---|---|---|---|---|---|---|
| 52 - 56 | — | — | — | Not Occupied | — | — |
| 57 | 0.5 | BK/GN | 2919 | Fuel Rail Pressure Sensor Low Reference | I | L5P |
| 58 | 0.5 | BU/WH | 2918 | Fuel Rail Pressure Sensor Signal | I | L5P |
| 59 | 0.5 | BN/RD | 2917 | Fuel Rail Pressure Sensor 5V Reference | I | L5P |
| 60 | 0.5 | GY/RD | 2704 | Manifold Absolute Pressure Sensor 5V Reference | I | L5P |
| 61 | 0.5 | GN/WH | 432 | Manifold Absolute Pressure Sensor Signal | I | L5P |
| 62 | 0.5 | BK/GN | 469 | Manifold Absolute Pressure Sensor Low Reference | I | L5P |
| 63 - 68 | — | — | — | Not Occupied | — | — |
| 69 | 0.5 | BN/BU | 2926 | Hydrocarbon Injector High Control | I | L5P |
| 70 | — | — | — | Not Occupied | — | — |
| 71 | 0.5 | VT/BU | 6091 | Crankshaft Position Sensor Replicated Signal | I | L5P |
| 72 | 0.5 | VT/BN | 2927 | Hydrocarbon Injector Low Control | I | L5P |
| 73 | — | — | — | Not Occupied | — | — |
| 74 | 0.5 | YE | 581 | Throttle Actuator Control Open | I | L5P |
| 75 | 0.5 | BN/WH | 582 | Throttle Actuator Control Close | I | L5P |
| 76 | 0.75 | BK/YE | 2834 | Fuel Rail Pressure Solenoid Low Reference | I | L5P |
| 77 - 79 | — | — | — | Not Occupied | — | — |
| 80 | 0.5 | BN/RD | 7445 | Fuel Line Pressure Sensor 5V Reference | I | L5P |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 81 | 0.5 | BU/WH | 7446 | Fuel Line Pressure Sensor Signal | I | L5P |
| 82 | 0.5 | BK/YE | 7447 | Fuel Line Pressure Sensor Low Reference | I | L5P |
| 83 | — | — | — | Not Occupied | — | — |
| 84 | 0.5 | BK/VT | 6272 | Crankshaft 60X Sensor Low Reference | I | L5P |
| 85 | 0.5 | GN | 6271 | Crankshaft 60X Sensor Signal | I | L5P |
| 86 | 0.5 | VT/BU | 6270 | Crankshaft 60X Sensor 5V Reference | I | L5P |
| 87 | 0.5 | BN/GN | 1174 | Oil Level Switch Signal | I | L5P |
| 88 - 90 | — | — | — | Not Occupied | — | — |
| 91 | 0.5 | BU/GN | 7071 | Heater Fuel Control | I | L5P |
| 92 | 0.5 | BN/VT | 3656 | EGR Cooler Bypass Motor Close Control | I | L5P |
| 93 | 0.5 | YE/GN | 3655 | EGR Cooler Bypass Motor Open Control | I | L5P |
| 94 | 0.5 | VT/BK | 5746 | Exhaust Gas Recirculation Valve Motor Low Signal | I | L5P |
| 95 | 0.5 | WH/VT | 5764 | Exhaust Gas Recirculation Valve Motor High Signal | I | L5P |
| 96 | 0.75 | BU/WH | 2530 | Fuel Rail Pressure Solenoid Control | I | L5P |

## K20 Engine Control Module X2 (L96)



### Connector Part Information

Harness Type: Engine

OEM Connector: 33152986

Service Connector: 19301191

Description: 73-Way F 0.64, 2.8 Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575812 | J-35616-64B (LT BU) | J-38125-213 | Not Available | Not Available | Not Available | Not Available |
| II | 13579770 | J-35616-35 (VT) | J-38125-11A | 7116-4152-02 | Yazaki 9 | A | 5 |

### *K20 Engine Control Module X2 (L96)*

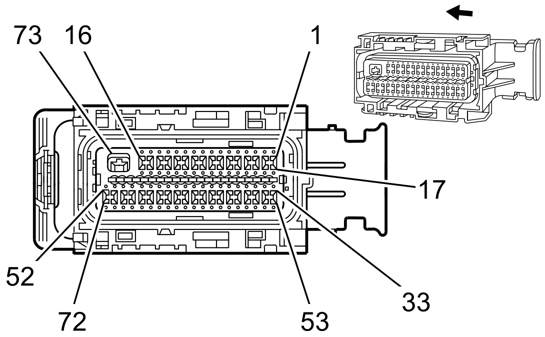
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | D-BU/VT | 2121 | Ignition Control 1 | I | — |
| 2 | 0.5 | L-GN/YE | 1744 | Fuel Injector Control 1 | I | — |
| 3 | 0.5 | BN/GY | 878 | Fuel Injector Control 8 | I | — |
| 4 | 0.5 | BN/VT | 877 | Fuel Injector Control 7 | I | — |
| 5 | 0.5 | YE/WH | 1745 | Fuel Injector Control 2 | I | — |
| 6 | 0.5 | BN/D-BU | 846 | Fuel Injector Control 6 | I | — |
| 7 | 0.5 | BN/L-GN | 845 | Fuel Injector Control 5 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 8 | 0.5 | BN/YE | 844 | Fuel Injector Control 4 | I | — |
| 9 | 0.5 | BN/VT | 1746 | Fuel Injector Control 3 | I | — |
| 10 | — | — | — | Not Occupied | — | — |
| 11 | 0.5 | VT/BN | 5284 | Camshaft Phaser Intake Solenoid 1 | I | — |
| 12 - 14 | — | — | — | Not Occupied | — | — |
| 15 | 0.5 | YE | 581 | Throttle Actuator Control Open | I | — |
| 16 | 0.5 | BN/WH | 582 | Throttle Actuator Control Close | I | — |
| 17 | 0.5 | VT/WH | 2128 | Ignition Control 8 | I | — |
| 18 | 0.5 | YE/D-BU | 2124 | Ignition Control 4 | I | — |
| 19 | 0.5 | BK/GY | 2130 | Ignition Control Low Reference Bank 2 | I | — |
| 20 | 0.5 | BK/VT | 6272 | Crankshaft 60X Sensor Low Reference | I | — |
| 21 - 23 | — | — | — | Not Occupied | — | — |
| 24 | 0.5 | BK/L-GN | 5301 | Camshaft Position Intake Sensor Low Reference 1 | I | — |
| 25 | 0.5 | BK/VT | 2755 | Oil Pressure Sensor Low Reference | I | — |
| 26 - 27 | — | — | — | Not Occupied | — | — |
| 28 | 0.75 | VT/D-BU | 5290 | Powertrain Main Relay Fused Supply 1 | I | — |
| 29 | 0.5 | BK/BN | 6753 | Cam Phaser W Low Reference | I | — |
| 30 - 32 | — | — | — | Not Occupied | — | — |
| 33 | 0.5 | L-GN/GY | 2127 | Ignition Control 7 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 34 | 0.5 | D-BU/GY | 2125 | Ignition Control 5 | I | — |
| 35 | 0.5 | BK/D-BU | 2129 | Ignition Control Low Reference Bank 1 | I | — |
| 36 | 0.5 | VT/D-BU | 6270 | Crankshaft 60X Sensor 5V Reference | I | — |
| 37 - 39 | — | — | — | Not Occupied | — | — |
| 40 | 0.5 | GY/D-BU | 5300 | Camshaft Position Intake Sensor Control 1 | I | — |
| 41 | 0.5 | WH/RD | 2705 | Oil Pressure Sensor 5V Reference | I | — |
| 42 | — | — | — | Not Occupied | — | — |
| 43 | 0.5 | BN/YE | 2701 | Throttle Position Sensor 5V Reference | I | — |
| 44 | 0.5 | BK/BN | 2752 | Throttle Position Sensor Low Reference | I | — |
| 45 | 0.5 | D-BU/WH | 3630 | Throttle Position Sensor (SENT1) Signal | I | — |
| 46 | — | — | — | Not Occupied | — | — |
| 47 | 0.5 | WH/BK | 3111 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 1 | I | — |
| 48 | 0.5 | YE/WH | 3211 | Heated Oxygen Sensor Low Signal Bank 2 Sensor 1 | I | — |
| 49 | 0.75 | BK/YE | 1716 | Knock Sensor Low Reference 1 | I | — |
| 50 | 0.75 | BK/GY | 2303 | Knock Sensor Low Reference 2 | I | — |
| 51 | — | — | — | Not Occupied | — | — |
| 52 | 0.5 | L-GN/YE | 3212 | Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1 | I | — |
| 53 | 0.5 | D-BU/WH | 2122 | Ignition Control 2 | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 54 | 0.5 | BN/D-BU | 2126 | Ignition Control 6 | I | — |
| 55 | 0.5 | L-GN/D-BU | 2123 | Ignition Control 3 | I | — |
| 56 | 0.5 | L-GN | 6271 | Crankshaft 60X Sensor Signal | I | — |
| 57 - 59 | — | — | — | Not Occupied | — | — |
| 60 | 0.5 | YE/VT | 5275 | Camshaft Position Intake Sensor 1 | I | — |
| 61 | 0.5 | YE/BN | 331 | Oil Pressure Sensor Signal | I | — |
| 62 - 66 | — | — | — | Not Occupied | — | — |
| 67 | 0.5 | VT/GY | 3110 | Heated Oxygen Sensor High Signal Bank 1 Sensor 1 | I | — |
| 68 | 0.5 | VT/WH | 3210 | Heated Oxygen Sensor High Signal Bank 2 Sensor 1 | I | — |
| 69 | 0.75 | VT/GY | 496 | Knock Sensor Signal 1 | I | — |
| 70 | 0.75 | WH/GY | 1876 | Knock Sensor Signal 2 | I | — |
| 71 | — | — | — | Not Occupied | — | — |
| 72 | 0.5 | GY/WH | 3113 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1 | I | — |
| 73 | 2.5 | BK/WH | 451 | Signal Ground | II | — |

## K20 Engine Control Module X2 (LV3-(NQG/NQH))



### Connector Part Information

Harness Type: Engine

OEM Connector: 33264057

Service Connector: Service by Harness - See Part Catalog

Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BK Terminal Position Assurance)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575812 | J-35616-64B (LT BU) | J-38125-213 | Not Available | Not Available | Not Available | Not Available |
| II | 13579770 | J-35616-35 (VT) | J-38125-11A | 7116-4152-02 | Yazaki 9 | A | 5 |

### *K20 Engine Control Module X2 (LV3-(NQG/NQH))*

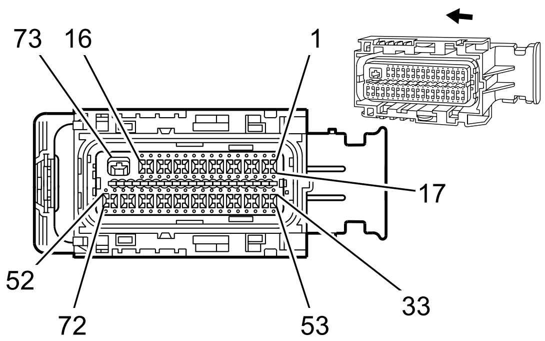
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | BK/L-GN | 2919 | Fuel Rail Pressure Sensor Low Reference | I | — |
| 4 | — | — | — | Not Occupied | — | — |
| 5 | 0.5 | GY/BK | 3096 | Output Speed (Digital) Sensor 5V Reference | I | — |
| 6 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.5<br>0.5 | L-GN<br>BN/WH | 3098<br>6354 | Output Speed (Digital) Signal<br>Output Speed High (Replicated TOS) Input Signal | I<br>I | M2P/MXW<br>-NQG/NQH |
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | VT/GY | 3110 | Heated Oxygen Sensor High Signal Bank 1 Sensor 1 | I | — |
| 11 | 0.5 | VT/WH | 3210 | Heated Oxygen Sensor High Signal Bank 2 Sensor 1 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 11 | 0.5 | VT/WH | 3210 | Heated Oxygen Sensor High Signal Bank 2 Sensor 1 | I | — |
| 12 | 0.5 | VT/D-BU | 3120 | Heated Oxygen Sensor High Signal Bank 1 Sensor 2 | I | — |
| 13 | 0.5 | VT/L-GN | 3220 | Heated Oxygen Sensor High Signal Bank 2 Sensor 2 | I | — |
| 14 | — | — | — | Not Occupied | — | — |
| 15 | 0.5 | GY/D-BU | 7564 | Humidity Sensor Signal | I | — |
| 16 | 0.5 | BN/WH | 582 | Throttle Actuator Control Close | I | — |
| 17 | — | — | — | Not Occupied | — | — |
| 18 | 0.5 | BN/RD | 2917 | Fuel Rail Pressure Sensor 5V Reference | I | — |
| 19 - 20 | — | — | — | Not Occupied | — | — |
| 21 | 0.5 | WH/BK | 3097 | Output Speed (Digital) Sensor Low Reference | I | — |
| 22 | — | — | — | Not Occupied | — | — |
| 23 | 0.5 | L-GN/WH | 5007 | Reverse Switch Signal | I | — |
| 24 - 25 | — | — | — | Not Occupied | — | — |
| 26 | 0.5 | WH/BK | 3111 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 1 | I | — |
| 27 | 0.5 | YE/WH | 3211 | Heated Oxygen Sensor Low Signal Bank 2 Sensor 1 | I | — |
| 28 | 0.5 | WH/YE | 3121 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 2 | I | — |
| 29 | 0.5 | YE/D-BU | 3221 | Heated Oxygen Sensor Low Signal Bank 2 Sensor 2 | I | — |
| 30 - 31 | — | — | — | Not Occupied | — | — |
| 32 | 0.5 | YE | 581 | Throttle Actuator Control Open | I | — |
| 33 | — | — | — | Not Occupied | — | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 34 | 0.5 | BN/RD | 2701 | Throttle Position Sensor 5V Reference | I | — |
| 35 | — | — | — | Not Occupied | — | — |
| 36 | 0.75 | VT/GY | 496 | Knock Sensor Signal 1 | I | — |
| 37 | 0.75 | WH/GY | 1876 | Knock Sensor Signal 2 | I | — |
| 38 - 40 | — | — | — | Not Occupied | — | — |
| 41 | 0.5 | GY/WH | 3113 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1 | I | — |
| 42 | 0.5 | GY/WH | 3122 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2 | I | — |
| 43 | 0.5 | L-GN/WH | 432 | Manifold Absolute Pressure Sensor Signal | I | — |
| 44 | 0.5 | GY/RD | 2704 | Manifold Absolute Pressure Sensor 5V Reference | I | — |
| 45 | — | — | — | Not Occupied | — | — |
| 46 | 0.5 | GY/BN | 2410 | — | I | — |
| 47 - 48 | — | — | — | Not Occupied | — | — |
| 49 | 0.5 | WH/D-BU | 6289 | Induction Air Temperature Sensor Signal | I | — |
| 50 | — | — | — | Not Occupied | — | — |
| 51 | 0.5 | L-GN/D-BU | 428 | EVAP Canister Purge Solenoid Control | I | — |
| 52 | 0.5 | L-GN/WH | 492 | Mass Air Flow Sensor Signal | I | — |
| 53 | 0.5 | BN | 25 | Charge Indicator Control | I | — |
| 54 | 0.5 | BK/BN | 2752 | Throttle Position Sensor Low Reference | I | — |
|  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 55 | 0.5 | GY | 23 | Generator Field Duty Cycle Signal | I | — |
| 56 | 0.75 | BK/YE | 1716 | Knock Sensor Low Reference 1 | I | — |
| 57 | 0.75 | BK/GY | 2303 | Knock Sensor Low Reference 2 | I | — |
| 58 | 0.5 | WH/GY | 1786 | Transmission Park/Neutral Signal 1 | I | — |
| 59 | 0.5 | D-BU | 179 | Oil Pump Command Signal | I | — |
| 60 | 0.5 | BN/L-GN | 1174 | Oil Level Switch Signal | I | — |
| 61 | 0.5 | L-GN/YE | 3212 | Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1 | I | — |
| 62 | 0.5 | WH/BN | 3223 | Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 2 | I | — |
| 63 | 0.5 | BK/L-GN | 469 | Manifold Absolute Pressure Sensor Low Reference | I | — |
| 64 | — | — | — | Not Occupied | — | — |
| 65 | 0.5 | BK/D-BU | 61 | Outside Ambient Temperature Sensor Low Reference | I | — |
| 66 - 68 | — | — | — | Not Occupied | — | — |
| 69 | 0.5 | WH/YE | 3202 | Throttle Inlet Absolute Pressure Sensor Low Reference | I | — |
| 70 | 0.5 | D-BU/WH | 3630 | Throttle Position Sensor (SENT1) Signal | I | — |
| 71 - 72 | — | — | — | Not Occupied | — | — |
| 73 | 2.5 | BK/WH | 451 | Signal Ground | II | — |

# K20 Engine Control Module X2 (L83/L86/LV3+(NQG/NQH))



## Connector Part Information

Harness Type: Engine

OEM Connector: 33264056

Service Connector: Service by Harness - See Part Catalog

Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with BK Terminal Position Assurance)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575812 | J-35616-64B (LT BU) | J-38125-213 | Not Available | Not Available | Not Available | Not Available |
| II | 13579770 | J-35616-35 (VT) | J-38125-11A | 7116-4152-02 | Yazaki 9 | A | 5 |

## *K20 Engine Control Module X2 (L83/L86/LV3+(NQG/NQH))*

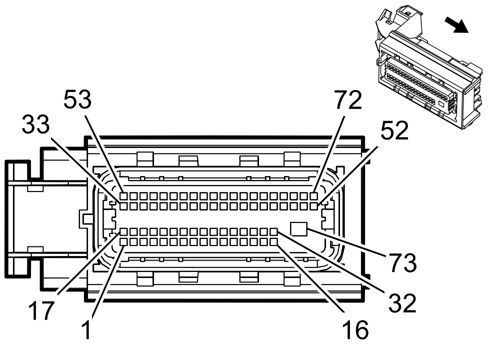
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | BK/L-GN | 2919 | Fuel Rail Pressure Sensor Low Reference | I | — |
| 4 - 5 | — | — | — | Not Occupied | — | — |
| 6 | 0.5 | VT/WH | 821 | Vehicle Speed Sensor Signal | I | — |
| 7 | 0.5 | BK/L-GN | 822 | Vehicle Speed Sensor Low Reference | I | — |
| 8 - 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | VT/GY | 3110 | Heated Oxygen Sensor High Signal Bank 1 Sensor 1 | I | — |
| 11 | 0.5 | VT/WH | 3210 | Heated Oxygen Sensor High Signal Bank 2 Sensor 1 | I | — |
| 12 | 0.5 | VT/D-BU | 3120 | Heated Oxygen Sensor High Signal Bank 1 Sensor 2 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 13 | 0.5 | VT/L-GN | 3220 | Heated Oxygen Sensor High Signal Bank 2 Sensor 2 | I | — |
| 14 | — | — | — | Not Occupied | — | — |
| 15 | 0.5 | GY/D-BU | 7564 | Humidity Sensor Signal | I | — |
| 16 | 0.5 | BN/WH | 582 | Throttle Actuator Control Close | I | — |
| 17 | — | — | — | Not Occupied | — | — |
| 18 | 0.5 | BN/RD | 2917 | Fuel Rail Pressure Sensor 5V Reference | I | — |
| 19 - 25 | — | — | — | Not Occupied | — | — |
| 26 | 0.5 | WH/BK | 3111 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 1 | I | — |
| 27 | 0.5 | YE/WH | 3211 | Heated Oxygen Sensor Low Signal Bank 2 Sensor 1 | I | — |
| 28 | 0.5 | WH/YE | 3121 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 2 | I | — |
| 29 | 0.5 | YE/D-BU | 3221 | Heated Oxygen Sensor Low Signal Bank 2 Sensor 2 | I | — |
| 30 - 31 | — | — | — | Not Occupied | — | — |
| 32 | 0.5 | YE | 581 | Throttle Actuator Control Open | I | — |
| 33 | — | — | — | Not Occupied | — | — |
| 34 | 0.5 | BN/RD | 2701 | Throttle Position Sensor 5V Reference | I | — |
| 35 | — | — | — | Not Occupied | — | — |
| 36 | 0.75 | VT/GY | 496 | Knock Sensor Signal 1 | I | — |
| 37 | 0.75 | WH/GY | 1876 | Knock Sensor Signal 2 | I | — |
| 38 - 40 | — | — | — | Not Occupied | — | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 41 | 0.5 | GY/WH | 3113 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 1 | I | — |
| 42 | 0.5 | GY/WH | 3122 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2 | I | — |
| 43 | 0.5 | L-GN/WH | 432 | Manifold Absolute Pressure Sensor Signal | I | — |
| 44 | 0.5 | GY/RD | 2704 | Manifold Absolute Pressure Sensor 5V Reference | I | — |
| 45 | — | — | — | Not Occupied | — | — |
| 46 | 0.5 | GY/BN | 2410 | — | I | — |
| 47 - 48 | — | — | — | Not Occupied | — | — |
| 49 | 0.5 | WH/D-BU | 6289 | Induction Air Temperature Sensor Signal | I | — |
| 50 | — | — | — | Not Occupied | — | — |
| 51 | 0.5 | L-GN/D-BU | 428 | EVAP Canister Purge Solenoid Control | I | — |
| 52 | 0.5 | L-GN/WH | 492 | Mass Air Flow Sensor Signal | I | — |
| 53 | 0.5 | BN | 25 | Charge Indicator Control | I | — |
| 54 | 0.5 | BK/BN | 2752 | Throttle Position Sensor Low Reference | I | — |
| 55 | 0.5 | GY | 23 | Generator Field Duty Cycle Signal | I | — |
| 56 | 0.75 | BK/YE | 1716 | Knock Sensor Low Reference 1 | I | — |
| 57 | 0.75 | BK/GY | 2303 | Knock Sensor Low Reference 2 | I | — |
| 58 | 0.5 | WH/GY | 1786 | Transmission Park/Neutral Signal 1 | I | — |
| 59 | 0.5 | D-BU | 179 | Oil Pump Command Signal | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 60 | 0.5 | BN/L-GN | 1174 | Oil Level Switch Signal | I | — |
| 61 | 0.5 | L-GN/YE | 3212 | Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 1 | I | — |
| 62 | 0.5 | WH/BN | 3223 | Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 2 | I | — |
| 63 | 0.5 | BK/L-GN | 469 | Manifold Absolute Pressure Sensor Low Reference | I | — |
| 64 | — | — | — | Not Occupied | — | — |
| 65 | 0.5 | BK/D-BU | 61 | Outside Ambient Temperature Sensor Low Reference | I | — |
| 66 - 68 | — | — | — | Not Occupied | — | — |
| 69 | 0.5 | WH/YE | 3202 | Throttle Inlet Absolute Pressure Sensor Low Reference | I | — |
| 70 | 0.5 | D-BU/WH | 3630 | Throttle Position Sensor (SENT1) Signal | I | — |
| 71 - 72 | — | — | — | Not Occupied | — | — |
| 73 | 2.5 | BK/WH | 451 | Signal Ground | II | — |

# K20 Engine Control Module X3 (L83/L86)



## Connector Part Information

Harness Type: Engine

OEM Connector: 33157045

Service Connector: 19260918

Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with GY Terminal Position Assurance)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575812 | J-35616-64B (LT BU) | J-38125-213 | 33467-0003 | Delphi 23 | J | J |
| II | 13579770 | J-35616-35 (VT) | J-38125-11A | 7116-4152-02 | Yazaki 9 | A | 5 |

## *K20 Engine Control Module X3 (L83/L86)*

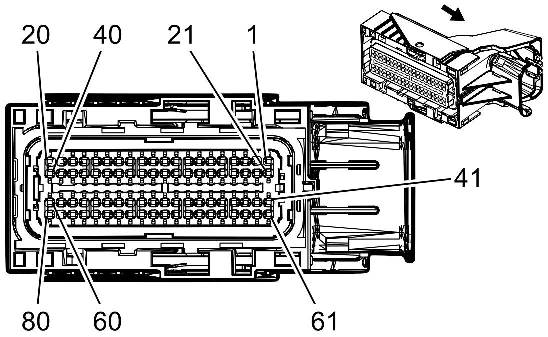
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/BN | 331 | Oil Pressure Sensor Signal | I | — |
| 2 | 0.5 | WH/RD | 2705 | Oil Pressure Sensor 5V Reference | I | — |
| 3 | 0.5 | BN/YE | 2161 | Fuel Rail Pressure Sensor 2 Signal | I | — |
| 4 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.5 | D-BU | 410 | Engine Coolant Temperature Sensor Signal | I | — |
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | VT/D-BU | 6270 | Crankshaft 60X Sensor 5V Reference | I | — |
| 11 | 0.5 | L-GN/D-BU | 2123 | Ignition Control 3 | I | — |
|  |  |  |  |  |  |  |

| | | | | | | |
|---|---|---|---|---|---|---|
| 12 | 0.5 | YE/D-BU | 2124 | Ignition Control 4 | I | — |
| 13 | 0.5 | D-BU/GY | 2125 | Ignition Control 5 | I | — |
| 14 | 0.5 | BN/D-BU | 2126 | Ignition Control 6 | I | — |
| 15 | 0.5 | BK/GY | 2130 | Ignition Control Low Reference Bank 2 | I | — |
| 16 | 0.75 | YE | 7301 | High Pressure Fuel Pump Actuator High - Control | I | — |
| 17 | 0.5 | BK/PU | 2755 | Oil Pressure Sensor Low Reference | I | — |
| 18 - 23 | — | — | — | Not Occupied | — | — |
| 24 | 0.5 | BK/BN | 2761 | Coolant Temperature Sensor Low Reference | I | — |
| 25 | 0.5 | BK/PU | 6272 | Crankshaft 60X Sensor Low Reference | I | — |
| 26 | 0.5 | L-GN | 6271 | Crankshaft 60X Sensor Signal | I | — |
| 27 | 0.5 | D-BU/WH | 2122 | Ignition Control 2 | I | — |
| 28 | 0.5 | L-GN/GY | 2127 | Ignition Control 7 | I | — |
| 29 | 0.5 | VT/WH | 2128 | Ignition Control 8 | I | — |
| 30 | 0.5 | D-BU/VT | 2121 | Ignition Control 1 | I | — |
| 31 | 0.5 | BK/D-BU | 2129 | Ignition Control Low Reference Bank 1 | I | — |
| 32 | 0.75 | VT/BK | 7300 | High Pressure Fuel Pump Actuator Low - Control | I | — |
| 33 | 0.5 | YE/VT | 5275 | Camshaft Position Intake Sensor 1 | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 34 | 0.5 | GY/D-BU | 5300 | Camshaft Position Intake Sensor Control 1 | I | — |
| 35 - 38 | — | — | — | Not Occupied | — | — |
| 39 | 0.5 | VT/BN | 5284 | Camshaft Phaser Intake Solenoid 1 | I | — |
| 40 - 42 | — | — | — | Not Occupied | — | — |
| 43 | 0.5 | GY | 5493 | Cylinder Shutoff Solenoid Control 3 | I | — |
| 44 | 0.5 | YE/D-BU | 5494 | Cylinder Shutoff Solenoid Control 4 | I | — |
| 45 | 0.75 | GY/D-BU | 4804 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 4 | I | — |
| 46 | 0.75 | D-BU | 4802 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 2 | I | — |
| 47 | 0.75 | L-GN/VT | 4806 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 6 | I | — |
| 48 | 0.75 | GY | 4808 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 8 | I | — |
| 49 | 0.75 | L-GN | 4803 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 3 | I | — |
| 50 | 0.75 | YE/GY | 4807 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 7 | I | — |
| 51 | 0.75 | WH/L-GN | 4805 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 5 | I | — |
| 52 | 0.75 | BN | 4801 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 1 | I | — |
| 53 | 0.5 | BK/L-GN | 5301 | Camshaft Position Intake Sensor Low Reference 1 | I | — |
| 54 - 58 | — | — | — | Not Occupied | — | — |
| 59 | 0.5 | BK/BN | 6753 | Cam Phaser W Low Reference | I | — |
| 60 - 62 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 60 - 62 | — | — | — | Not Occupied | — | — |
| 63 | 0.5 | D-BU | 5491 | Cylinder Shutoff Solenoid Control 1 | I | — |
| 64 | 0.5 | L-GN | 5492 | Cylinder Shutoff Solenoid Control 2 | I | — |
| 65 | 0.75 | D-BU/WH | 4904 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4 | I | — |
| 66 | 0.75 | BN/L-GN | 4902 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2 | I | — |
| 67 | 0.75 | VT | 4906 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6 | I | — |
| 68 | 0.75 | WH/L-GN | 4908 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 8 | I | — |
| 69 | 0.75 | L-GN/BK | 4903 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3 | I | — |
| 70 | 0.75 | WH/YE | 4907 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 7 | I | — |
| 71 | 0.75 | L-GN/WH | 4905 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5 | I | — |
| 72 | 0.75 | BN/WH | 4901 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1 | I | — |
| 73 | 2.5 | BK/WH | 451 | Signal Ground | II | — |

## K20 Engine Control Module X3 (L5P)



### Connector Part Information

Harness Type: Engine

OEM Connector: 13782479

Service Connector: 13577545

Description: 80-Way F MX123 Series, Sealed (BU)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575812 | J-35616-64B (LT BU) | J-38125-213 | Not Available | Not Available | Not Available | Not Available |

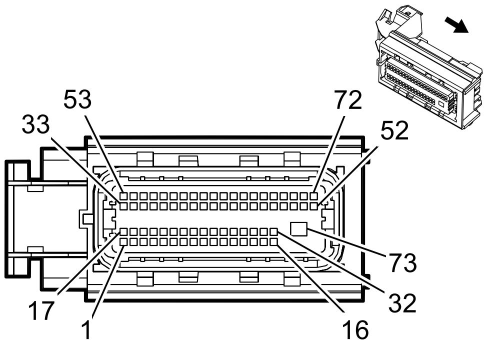
### *K20 Engine Control Module X3 (L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | BN | 3099 | DEF Dosing Valve High Control | I | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | L-GN/D-BU | 3889 | DEF Power Module Relay Control | I | — |
| 4 - 11 | — | — | — | Not Occupied | — | — |
| 12 | 0.5 | YE/BK | 3682 | Charge Air Cooler Inlet Temperature Sensor Low Reference | I | — |
| 13 | 0.5 | YE/D-BU | 3680 | Charge Air Cooler Outlet Temperature Sensor Low Reference | I | — |
| 14 | 0.5 | BK/YE | 6275 | Exhaust Gas Recirculation Temperature Sensor 2 Low Reference | I | — |
| 15 | 0.5 | BK/D-BU | 6274 | Exhaust Gas Recirculation Temperature Sensor Low Reference | I | — |
| 16 | 0.5 | BK/VT | 3661 | Exhaust Gas Temperature Sensor 5 Low Reference | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 17 | 0.5 | BK/GY | 3659 | Exhaust Gas Temperature Sensor 4 Low Reference | I | — |
| 18 | 0.5 | BK/L-GN | 3657 | Exhaust Gas Temperature Sensor 3 Low Reference | I | — |
| 19 | 0.5 | BK/D-BU | 6783 | Exhaust Gas Temperature Sensor 2 Low Reference | I | — |
| 20 | 0.5 | BK/BN | 6782 | Exhaust Gas Temperature Sensor 1 Low Reference | I | — |
| 21 | 0.75 | BN/WH | 3100 | DEF Dosing Valve Low Control | I | — |
| 22 - 24 | — | — | — | Not Occupied | — | — |
| 25 | 0.5 | WH/L-GN | 6142 | Power Take Off Engine Shutdown Signal | I | — |
| 26 - 27 | — | — | — | Not Occupied | — | — |
| 28 | 0.5 | WH/RD | 3201 | Throttle Inlet Absolute Pressure Sensor 5V Reference | I | — |
| 29 | 0.5 | BN/L-GN | 5266 | Ambient Air Pressure Sensor Signal | I | — |
| 30 - 31 | — | — | — | Not Occupied | — | — |
| 32 | 0.5 | L-GN | 3683 | Charge Air Cooler Inlet Temperature Sensor Signal | I | — |
| 33 | 0.5 | BN | 3681 | Charge Air Cooler Outlet Temperature Sensor Signal | I | — |
| 34 | 0.5 | YE/L-GN | 3236 | Exhaust Gas Recirculation Temperature Sensor 2 Signal | I | — |
| 35 | 0.5 | WH/BN | 3237 | Exhaust Gas Recirculation Temperature Sensor Signal | I | — |
| 36 | 0.5 | D-BU/GY | 3660 | Exhaust Gas Temperature Sensor 5 Signal | I | — |
| 37 | 0.5 | VT/BN | 3658 | Exhaust Gas Temperature Sensor 4 Signal | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 38 | 0.5 | GY/L-GN | 5378 | Exhaust Gas Temperature Sensor 3 | I | — |
| 39 | 0.5 | D-BU/L-GN | 5377 | Exhaust Gas Temperature Sensor 2 | I | — |
| 40 | 0.5 | D-BU/WH | 5277 | Exhaust Gas Temperature Sensor 1 | I | — |
| 41 - 64 | — | — | — | Not Occupied | — | — |
| 65 | 0.5 | BK/BN | 6141 | Cooling Fan Speed Low Reference | I | — |
| 66 | 0.5 | D-BU/VT | 2364 | Cooling Fan Speed Signal | I | — |
| 67 | 0.5 | GY/RD | 2365 | Cooling Fan Speed 5V Reference | I | — |
| 68 - 75 | — | — | — | Not Occupied | — | — |
| 76 | 0.5 | BK/YE | 6055 | Exhaust Pressure Sensor Low Reference 1 | I | — |
| 77 | 0.5 | D-BU | 6053 | Exhaust Pressure Sensor Signal 1 | I | — |
| 78 | 0.5 | WH/RD | 6054 | Exhaust Pressure Sensor 5V Reference 1 | I | — |
| 79 - 80 | — | — | — | Not Occupied | — | — |

## K20 Engine Control Module X3 (L96)



### Connector Part Information

Harness Type: Engine

OEM Connector: 33157048

Service Connector: 19260918

Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with GY Terminal Position Assurance)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575812 | J-35616-64B (LT BU) | J-38125-213 | Not Available | Not Available | Not Available | Not Available |

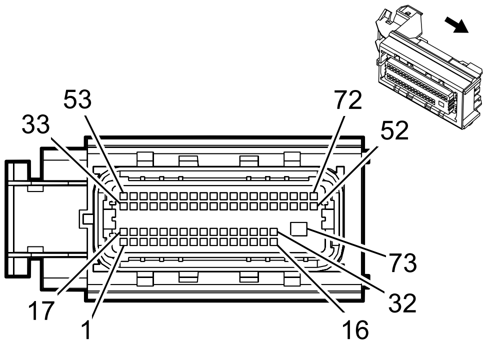
### *K20 Engine Control Module X3 (L96)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | L-GN/WH | 5007 | Reverse Switch Signal | I | — |
| 2 - 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | L-GN/D-BU | 428 | EVAP Canister Purge Solenoid Control | I | — |
| 11 - 15 | — | — | — | Not Occupied | — | — |
| 16 | 0.5 | WH/BN | 3223 | Heated Oxygen Sensor Heater Low Control Bank 2 Sensor 2 | I | — |
| 17 | 0.5 | GY | 23 | Generator Field Duty Cycle Signal | I | — |
| 18 - 21 | — | — | — | Not Occupied | — | — |
| 22 | 0.5 | BK/GY | 6110 | Clutch Apply Sensor Low Reference | I | E29 |
|  | 0.5 | BK/BN | 5360 | Brake Apply Sensor Low Reference | I | -E29 |
| 23 - 26 | — | — | — | Not Occupied | — | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 27 | 0.5 | BK/L-GN | 6281 | Fuel Level Sensor Low Reference | I | — |
| 28 | 0.5 | GY/RD | 2704 | Manifold Absolute Pressure Sensor 5V Reference | I | — |
| 29 | 0.5 | BK/L-GN | 469 | Manifold Absolute Pressure Sensor Low Reference | I | — |
| 30 | 0.5 | BK/BN | 2761 | Coolant Temperature Sensor Low Reference | I | — |
| 31 | — | — | — | Not Occupied | — | — |
| 32 | 0.5 | GY/WH | 3122 | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2 | I | — |
| 33 - 37 | — | — | — | Not Occupied | — | — |
| 38 | 0.5 | GY/RD | 6109 | Clutch Apply Sensor 5V Reference | I | E29 |
|  | 0.5 | WH | 5359 | Brake Apply Sensor Control | I | -E29 |
| 39 - 42 | — | — | — | Not Occupied | — | — |
| 43 | 0.5 | YE/RD | 2709 | Fuel Tank Pressure Sensor 5V Reference | I | — |
| 44 | 0.5 | D-BU/WH | 1937 | Secondary Fuel Level Sensor Signal | I | — |
| 45 | 0.5 | L-GN/WH | 432 | Manifold Absolute Pressure Sensor Signal | I | — |
| 46 | 0.5 | D-BU | 410 | Engine Coolant Temperature Sensor Signal | I | — |
| 47 | — | — | — | Not Occupied | — | — |
| 48 | 0.5 | VT/WH | 821 | Vehicle Speed Sensor Signal | I | — |
| 49 | 0.5 | BK/L-GN | 822 | Vehicle Speed Sensor Low Reference | I | — |
| 50 - 54 | — | — | — | Not Occupied | — | — |
| 55 | 0.5 | BN/WH | 6354 | Output Speed High (Replicated TOS) Input Signal | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 56 - 57 | — | — | — | Not Occupied | — | — |
| 58 | 0.5<br>0.5 | YE<br>D-BU/YE | 6111<br>5361 | Clutch Apply Sensor Signal<br>Brake Apply Sensor Signal | I<br>I | E29<br>-E29 |
| 59 - 62 | — | — | — | Not Occupied | — | — |
| 63 | 0.5 | D-BU/WH | 890 | Fuel Tank Pressure Sensor Signal | I | — |
| 64 | 0.5 | D-BU/VT | 1589 | Primary Fuel Level Sensor Signal | I | — |
| 65 | 0.5 | VT/L-GN | 3220 | Heated Oxygen Sensor High Signal Bank 2 Sensor 2 | I | — |
| 66 | 0.5 | YE/D-BU | 3221 | Heated Oxygen Sensor Low Signal Bank 2 Sensor 2 | I | — |
| 67 | 0.5 | VT/D-BU | 3120 | Heated Oxygen Sensor High Signal Bank 1 Sensor 2 | I | — |
| 68 | 0.5 | WH/YE | 3121 | Heated Oxygen Sensor Low Signal Bank 1 Sensor 2 | I | — |
| 69 - 73 | — | — | — | Not Occupied | — | — |

## K20 Engine Control Module X3 (LV3)



### Connector Part Information

Harness Type: Engine

OEM Connector: 33157046

Service Connector: 19260918

Description: 73-Way F 0.64, 2.8 Series, Sealed (BK with GY Terminal Position Assurance)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575812 | J-35616-64B (LT BU) | J-38125-213 | Not Available | Not Available | Not Available | Not Available |
| II | 13579770 | J-35616-35 (VT) | J-38125-11A | 7116-4152-02 | Yazaki 9 | A | 5 |

### *K20 Engine Control Module X3 (LV3)*

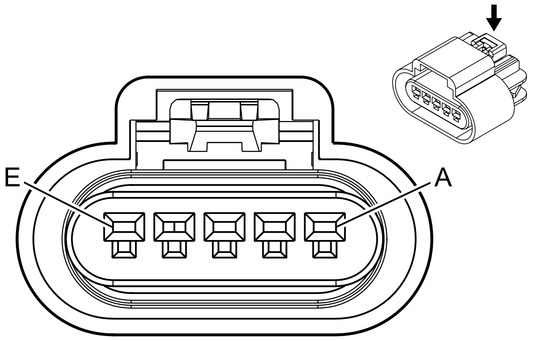
| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/BN | 331 | Oil Pressure Sensor Signal | I | — |
| 2 | 0.5 | WH/RD | 2705 | Oil Pressure Sensor 5V Reference | I | — |
| 3 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.5 | D-BU | 410 | Engine Coolant Temperature Sensor Signal | I | — |
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | VT/D-BU | 6270 | Crankshaft 60X Sensor 5V Reference | I | — |
| 11 - 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.5 | D-BU/WH | 2122 | Ignition Control 2 | I | — |
| 14 | 0.5 | L-GN/D-BU | 2123 | Ignition Control 3 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 15 | 0.5 | BK/GY | 2130 | Ignition Control Low Reference Bank 2 | I | — |
| 16 | 0.75 | YE | 7301 | High Pressure Fuel Pump Actuator High - Control | I | — |
| 17 | 0.5 | BK/VT | 2755 | Oil Pressure Sensor Low Reference | I | — |
| 18 - 23 | — | — | — | Not Occupied | — | — |
| 24 | 0.5 | BK/BN | 2761 | Coolant Temperature Sensor Low Reference | I | — |
| 25 | 0.5 | BK/VT | 6272 | Crankshaft 60X Sensor Low Reference | I | — |
| 26 | 0.5 | L-GN | 6271 | Crankshaft 60X Sensor Signal | I | — |
| 27 | 0.5 | YE/D-BU | 2124 | Ignition Control 4 | I | — |
| 28 | 0.5 | D-BU/GY | 2125 | Ignition Control 5 | I | — |
| 29 | 0.5 | BN/D-BU | 2126 | Ignition Control 6 | I | — |
| 30 | 0.5 | D-BU/VT | 2121 | Ignition Control 1 | I | — |
| 31 | 0.5 | BK/D-BU | 2129 | Ignition Control Low Reference Bank 1 | I | — |
| 32 | 0.75 | VT/BK | 7300 | High Pressure Fuel Pump Actuator Low - Control | I | — |
| 33 | 0.5 | YE/VT | 5275 | Camshaft Position Intake Sensor 1 | I | — |
| 34 | 0.5 | GY/D-BU | 5300 | Camshaft Position Intake Sensor Control 1 | I | — |
| 35 - 38 | — | — | — | Not Occupied | — | — |
| 39 | 0.5 | VT/BN | 5284 | Camshaft Phaser Intake Solenoid 1 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 40 - 45 | — | — | — | Not Occupied | — | — |
| 46 | 0.75 | GY/D-BU | 4804 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 4 | I | — |
| 47 | 0.75 | L-GN | 4803 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 3 | I | — |
| 48 | 0.75 | L-GN/VT | 4806 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 6 | I | — |
| 49 | — | — | — | Not Occupied | — | — |
| 50 | 0.75 | WH/L-GN | 4805 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 5 | I | — |
| 51 | 0.75 | D-BU | 4802 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 2 | I | — |
| 52 | 0.75 | BN | 4801 | Direct Fuel Injector (DFI) High Voltage Control Cylinder 1 | I | — |
| 53 | 0.5 | BK/L-GN | 5301 | Camshaft Position Intake Sensor Low Reference 1 | I | — |
| 54 - 58 | — | — | — | Not Occupied | — | — |
| 59 | 0.5 | BK/BN | 6753 | Cam Phaser W Low Reference | I | — |
| 60 - 62 | — | — | — | Not Occupied | — | — |
| 63 | 0.5 | D-BU | 5491 | Cylinder Shutoff Solenoid Control 1 | I | — |
| 64 | 0.5 | L-GN | 5492 | Cylinder Shutoff Solenoid Control 2 | I | — |
| 65 | — | — | — | Not Occupied | — | — |
| 66 | 0.75 | D-BU/WH | 4904 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4 | I | — |
| 67 | 0.75 | L-GN/BK | 4903 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3 | I | — |
| 68 | 0.75 | VT | 4906 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6 | I | — |
| 69 | — | — | — | Not Occupied | — | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 69 | — | — | — | Not Occupied | — | — |
| 70 | 0.75 | L-GN/WH | 4905 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5 | I | — |
| 71 | 0.75 | BN/L-GN | 4902 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2 | I | — |
| 72 | 0.75 | BN/WH | 4901 | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1 | I | — |
| 73 | 2.5 | BK/WH | 451 | Signal Ground | II | — |

## K22 Cooling Fan Control Module



### Connector Part Information

Harness Type: Engine

OEM Connector: 13519051

Service Connector: 13585858

Description: 5-Way F 150 GT Series, Sealed (BK)

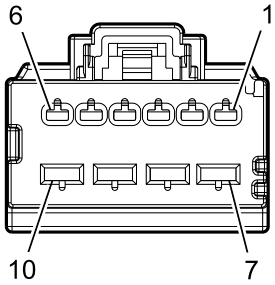
### *Terminal Part Information*

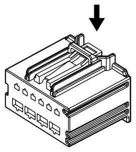
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K22 Cooling Fan Control Module*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.75 | BK | 550 | Ground | I | — |
| B | 0.5 | WH | 2368 | Cooling Fan Control Signal | I | — |
| C | 0.5 | BK/BN | 6141 | Cooling Fan Speed Low Reference | I | — |
| D | 0.5 | D-BU/VT | 2364 | Cooling Fan Speed Signal | I | — |
| E | 0.5 | GY/RD | 2365 | Cooling Fan Speed 5V Reference | I | — |

## K29 Seat Heating Control Module X1





### Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 31372-1000

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 1.5, 2.8 Series (BK)

### *Terminal Part Information*

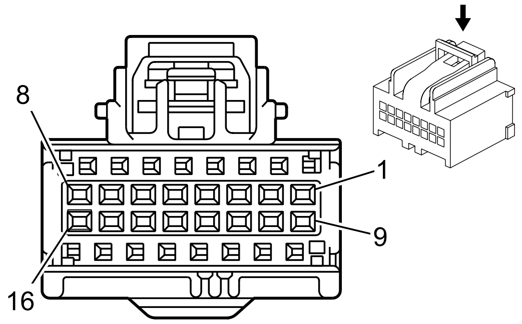
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K29 Seat Heating Control Module X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | WH/BN | 2481 | Passenger Heated Back Element Control | I | — |
| 2 | 0.75 | BN/L-BU | 2479 | Passenger Heated Seat Element Control | I | — |
| 3 | 0.75 | GY/BK | 2480 | Passenger Heated Seat Element Low Reference | I | — |
| 4 | 0.75 | BN/BK | 2078 | Driver Heated Seat Element Low Reference | I | — |
| 5 | 0.75 | BN | 2432 | Driver Heated Back Element Control | I | — |
| 6 | 0.75 | BN/VT | 2077 | Driver Heated Seat Element Control | I | — |
| 7 | 0.75 | RD/L-GN | 6140 | Battery Positive Voltage | II | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 8 | 0.75 | BK | 1250 | Ground | II | — |
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.75 | RD/L-GN | 5140 | Battery Positive Voltage | II | — |

## K29 Seat Heating Control Module X2



### Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 15136073

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way F 0.64 Kaizen Series (BK)

### *Terminal Part Information*

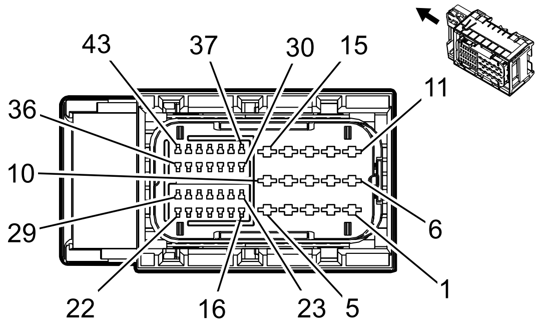
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K29 Seat Heating Control Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/YE | 2080 | Driver Heated Seat NTC Low Reference | I | — |
| 2 | 0.5 | BK/GY | 2435 | Passenger Heated Seat NTC Low Reference | I | — |
| 3 | 0.5 | L-BU | 2425 | Driver Heated Back NTC Signal | I | — |
| 4 | 0.5 | WH/L-BU | 2436 | Passenger Heated Back NTC Signal | I | — |
| 5 | 0.5 | WH/GY | 2434 | Passenger Heated Seat NTC Signal | I | — |
| 6 | 0.5 | YE/GY | 2079 | Driver Heated Seat NTC Signal | I | — |
| 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.35 | L-GN/L-BU | 6133 | Local Interconnect Network Serial Data Bus 2 | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | 0.35 | L-GN/VT | 5906 | Driver Seat Vent Motor Control 1 | I | — |
| 10 | 0.35 | VT/WH | 5908 | Passenger Seat Vent Motor Control 1 | I | — |
| 11 | — | — | — | Not Occupied | — | — |
| 12 | 0.5 | BK/L-GN | 2482 | Passenger Heated Back NTC Low Reference | I | — |
| 13 - 16 | — | — | — | Not Occupied | — | — |

## K34 Glow Plug Control Module X2



### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 10023701

Service Connector: Service by Harness - See Part Catalog

Description: 43-Way F 1.2, 2.8 Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13576372 | J-35616-4A (PU) | J-38125-556 | Not Available | Not Available | Not Available | Not Available |
| II | 13580008 | J-35616-16 (LT GN) | J-38125-21 | Not Available | Not Available | Not Available | Not Available |

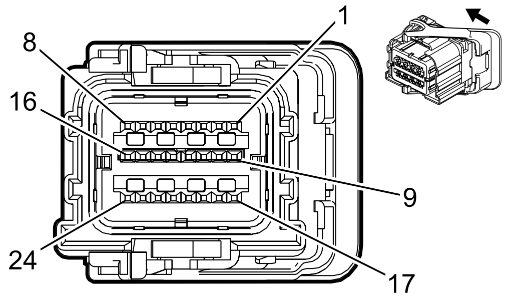
### *K34 Glow Plug Control Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | — | Not Occupied | — | — |
| 2 | 2 | GY/YE | 1584 | Glow Plug Control 4 | I | L5P |
| 3 | 2 | GY/GN | 1583 | Glow Plug Control 3 | I | L5P |
| 4 | 2 | GY/BN | 1582 | Glow Plug Control 2 | I | L5P |
| 5 | 2 | GY/BU | 1581 | Glow Plug Control 1 | I | L5P |
| 6 - 9 | — | — | — | Not Occupied | — | — |
| 10 | 2 | BK | 550 | Ground | I | L5P |
| 11 | — | — | — | Not Occupied | — | — |
| 12 | 2 | GY/WH | 1585 | Glow Plug Control 5 | I | L5P |

| | | | | | | |
|---|---|---|---|---|---|---|
| 13 | 2 | GY/VT | 1586 | Glow Plug Control 6 | I | L5P |
| 14 | 2 | WH/BK | 1587 | Glow Plug Control 7 | I | L5P |
| 15 | 2 | WH/BU | 1588 | Glow Plug Control 8 | I | L5P |
| 16 | 0.5 | BK | C92 | Cavity Seal | II | L5P |
| 17 | 0.5 | BK | C93 | Cavity Seal | II | L5P |
| 18 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | L5P |
| 19 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | L5P |
| 20 - 22 | — | — | — | Not Occupied | — | — |
| 23 | 0.5 | BK | D23 | Cavity Seal | II | L5P |
| 24 | 0.5 | BK | D24 | Cavity Seal | II | L5P |
| 25 | 0.5 | BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | L5P |
| 26 | 0.5 | BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | L5P |
| 27 - 29 | — | — | — | Not Occupied | — | — |
| 30 | 0.5 | BK | D30 | Cavity Seal | II | L5P |
| 31 | 0.5 | BK | D31 | Cavity Seal | II | L5P |
| 32 | — | — | — | Not Occupied | — | — |
| 33 | 0.5 | VT/BK | 2139 | Run/Crank Ignition 1 Voltage | II | L5P |
| 34 - 36 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 34 - 36 | — | — | — | Not Occupied | — | — |
| 37 | 0.5 | BK | D37 | Cavity Seal | II | L5P |
| 38 | 0.5 | BK | D38 | Cavity Seal | II | L5P |
| 39 | — | — | — | Not Occupied | — | — |
| 40 | 0.5 | VT/YE | 443 | Accessory Ignition Voltage | II | L5P |
| 41 - 43 | — | — | — | Not Occupied | — | — |

# K36 Inflatable Restraint Sensing and Diagnostic Module X1



## Connector Part Information

Harness Type: Body

OEM Connector: 13887360

Service Connector: 19328755

Description: 24-Way F 0.64 Series, Sealed (YE)

## Terminal Part Information

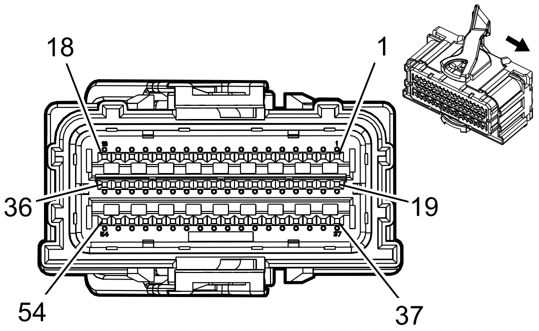
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19328872 | J-35616-64B (LT BU) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |

## K36 Inflatable Restraint Sensing and Diagnostic Module X1

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | OG/L-GN | 3023 | Steering Wheel Module Stage 2 High Control | I | — |
| 2 | 0.35 | WH/OG | 3022 | Steering Wheel Module Stage 2 Low Control | I | — |
| 3 | 0.35 | BN/OG | 3020 | Steering Wheel Module Stage 1 Low Control | I | — |
| 4 | 0.35 | OG/VT | 3021 | Steering Wheel Module Stage 1 High Control | I | — |
| 5 | 0.35 | YE/OG | 3025 | Passenger IP Module Stage 1 High Control | I | — |
| 6 | 0.35 | OG/WH | 3024 | Passenger IP Module Stage 1 Low Control | I | — |
| 7 | 0.35 | OG/VT | 3026 | Passenger IP Module Stage 2 Low Control | I | — |
| 8 | 0.35 | GY/OG | 3027 | Passenger IP Module Stage 2 High Control | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | 0.5 | RD/L-GN | 4440 | Battery Positive Voltage | I | — |
| 10 | 0.35 | VT/WH | 5234 | Passenger Seat Belt Indicator Control | I | — |
| 11 | 0.35 | D-BU | 2307 | Passenger Air Bag On Indicator Control | I | — |
| 12 | 0.35 | L-GN | 2308 | Passenger Air Bag Off Indicator Control | I | — |
| 13 | 0.35 | VT/OG | 371 | Passenger IP Module Disable Switch Signal | I | — |
| 14 | 0.35 | D-BU/OG | 7328 | Passenger IP Module Disable Switch Low Reference | I | — |
| 15 | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |
| 16 | — | — | — | Not Occupied | — | — |
| 17 | 0.5 | WH/D-BU | 5986 | Serial Data Communication Enable | I | — |
| 18 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | I | — |
| 19 | 0.5 | BK/WH | 2751 | Signal Ground | I | AL0 |
| | 0.75 | BK/WH | 2751 | Signal Ground | I | -AL0 |
| 20 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | I | — |
| 21 - 24 | — | — | — | Not Occupied | — | — |

## K36 Inflatable Restraint Sensing and Diagnostic Module X2



### Connector Part Information

Harness Type: Body

OEM Connector: 13944372

Service Connector: 19303770

Description: 54-Way F 0.64 Series, Sealed (YE)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | | J-35616-64B (LT BU) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| II | 19328872 | J-35616-64B (LT BU) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |

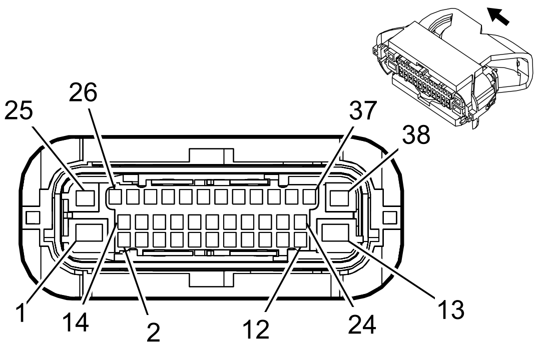
### *K36 Inflatable Restraint Sensing and Diagnostic Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 8 | — | — | — | Not Occupied | — | — |
| 9 | 0.35 | OG/YE | 3481 | Driver Seat Belt Anchor Pretensioner High Control | II | — |
| 10 | 0.35 | YE/OG | 3482 | Driver Seat Belt Anchor Pretensioner Low Control | II | — |
| 11 | 0.35 | GY/OG | 3480 | Passenger Seat Belt Anchor Pretensioner Low Control | II | — |
| 12 | 0.35 | OG/BN | 3479 | Passenger Seat Belt Anchor Pretensioner High Control | II | — |
| 13 | 0.35 | OG/BU | 3068 | Driver Side Impact Module High Control | II | — |
| 14 | 0.35 | GN/OG | 3069 | Driver Side Impact Module Low Control | II | — |
| 15 | 0.35 | BN/OG | 3067 | Passenger Side Impact Module Low Control | II | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 16 | 0.35 | OG/GY | 3066 | Passenger Side Impact Module High Control | II | — |
| 17 | 0.35 | OG/GN | 5019 | Left Front Head Curtain Module High Control | II | — |
| 18 | 0.35 | VT/OG | 5020 | Left Front Head Curtain Module Low Control | II | — |
| 19 | 0.35 | OG/GN | 2132 | Left Front Side Impact Sensing Module Signal | II | — |
| 20 | 0.35 | BK/OG | 6628 | Left Front Side Impact Sensing Module Low Reference | II | — |
| 21 | 0.35 | BK/OG | 6629 | Right Front Side Impact Sensing Module Low Reference | II | — |
| 22 | 0.35 | BN/OG | 2134 | Right Front Side Impact Sensing Module Signal | II | — |
| 23 | 0.35 | OG/YE | 354 | Left Front Discriminating Sensor Signal | II | — |
| 24 | 0.35 | BK/OG | 5045 | Left Front Discriminating Sensor Low Reference | II | — |
| 25 | 0.35 | BK/OG | 5600 | Right Front Discriminating Sensor Low Reference | II | — |
| 26 | 0.35 | OG/GN | 1409 | Right Front Discriminating Sensor Signal | II | — |
| 27 | 0.35 | OG/BU | 6620 | Left Middle Side Impact Sensing Module Signal | II | — |
| 28 | 0.35 | BK/OG | 6621 | Left Middle Side Impact Sensing Module Low Reference | II | — |
| 29 | 0.35 | BK/OG | 6625 | Right Middle Side Impact Sensing Module Low Reference | II | — |
| 30 | 0.35 | OG/VT | 6624 | Right Middle Side Impact Sensing Module Signal | II | — |
| 31 - 36 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 37 | 0.5 | RD | 3477 | Driver Seat Belt Retractor Pretensioner High Control | I | — |
| 38 | 0.5 | GY | 3478 | Driver Seat Belt Retractor Pretensioner Low Control | I | — |
| 39 | 0.5 | WH | 3476 | Passenger Seat Belt Retractor Pretensioner Low Control | I | — |
| 40 | 0.5 | GN | 3475 | Passenger Seat Belt Retractor Pretensioner High Control | I | — |
| 41 | 0.35 | OG/BN | 238 | Driver Seat Belt Switch Signal | II | — |
| 42 | 0.35 | OG/GN | 5055 | Driver Seat Position Switch Signal | II | — |
| 43 | 0.35 | BK/OG | 1363 | Driver Seat Belt Switch Low Reference | II | — |
| 44 | 0.35 | BK/OG | 1361 | Passenger Seat Belt Switch Low Reference | II | — |
| 45 | 0.35 | OG/VT | 1362 | Passenger Seat Belt Switch Signal | II | — |
| 46 | 0.35 | OG/BU | 5056 | Passenger Seat Position Switch Signal | II | — |
| 47 - 52 | — | — | — | Not Occupied | — | — |
| 53 | 0.35 | OG/GY | 5021 | Right Front Head Curtain Module High Control | II | — |
| 54 | 0.35 | WH/OG | 5022 | Right Front Head Curtain Module Low Control | II | — |

# K38A Chassis Control Module - Auxiliary (JL1)



## Connector Part Information

Harness Type: Chassis

OEM Connector: 33102981

Service Connector: 19329471

Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK)

## *Terminal Part Information*

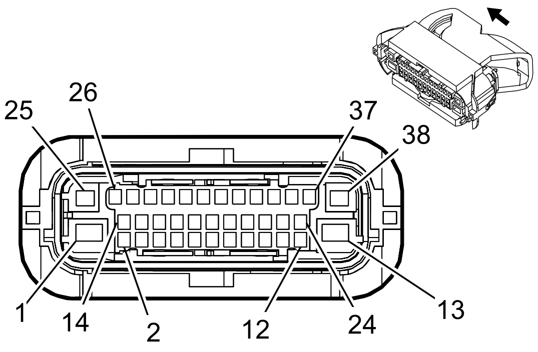
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19119381 | J-35616-14 (GN) | J-38125-215A | Not Available | Not Available | Not Available | Not Available |
| II | 19119772 | J-35616-35 (VT) | J-38125-557 | 1241388-1 | Lear 17 | E | C |
| III | 19353101 | J-35616-40 (BU) | J-38125-556 | Not Available | Not Available | Not Available | Not Available |

## *K38A Chassis Control Module - Auxiliary (JL1)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | RD/WH | 2040 | Battery Positive Voltage | III | — |
| 2 - 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.75 | BK | 1750 | Ground | III | — |
| 14 | 0.5 | VT/YE | 5985 | Accessory Wakeup Serial Data | I | — |
| 15 | — | — | — | Not Occupied | — | — |
| 16 | 0.5 | D-BU/RD | 7632 | Integrated Trailer Brake Controller Switch 5V Reference | I | — |
| 17 | — | — | — | Not Occupied | — | — |
| 18 | 0.5 | BN | 7634 | Integrated Trailer Brake Controller Redundant Manual Apply Signal | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 19 | 0.5 | BK/BN | 7631 | Integrated Trailer Brake Controller Switch Low Reference | I | — |
| 20 | 0.5 | YE | 7635 | Integrated Trailer Brake Controller Manual Apply Signal | I | — |
| 21 | 0.5 | L-GN/BK | 7633 | Integrated Trailer Brake Controller User Gain Signal | I | — |
| 22 | 0.5 | YE/BK | 2224 | Trailer Brake Enable Signal | I | — |
| 23 | 0.5 | WH/BK | 2223 | Trailer Brake Control Signal | I | — |
| 24 | — | — | — | Not Occupied | — | — |
| 25 | 0.75 | VT/L-GN | 439 | Run/Crank Ignition 1 Voltage | II | — |
| 26 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 27 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 28 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 29 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 30 | 0.5 | L-GN/VT | 4114 | Local Interconnect Network Serial Data Bus 14 | I | — |
| 31 - 38 | — | — | — | Not Occupied | — | — |

## K38 Chassis Control Module (Light Duty)



### Connector Part Information

Harness Type: Chassis

OEM Connector: 33102981

Service Connector: 19329471

Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK)

### *Terminal Part Information*

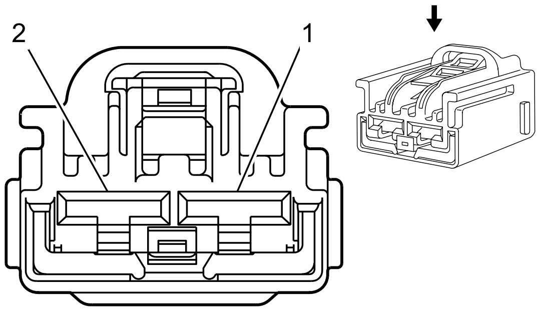
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19119381 | J-35616-14 (GN) | J-38125-215A | Not Available | Not Available | Not Available | Not Available |
| II | 19119772 | J-35616-35 (VT) | J-38125-557 | 1241388-1 | Lear 17 | E | C |
| III | 19353101 | J-35616-40 (BU) | J-38125-556 | Not Available | Not Available | Not Available | Not Available |

### *K38 Chassis Control Module (Light Duty)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | RD/WH | 2040 | Battery Positive Voltage | III | — |
| 2 - 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.75 | BK | 1750 | Ground | III | — |
| 14 | 0.5 | VT/YE | 5985 | Accessory Wakeup Serial Data | I | — |
| 15 | — | — | — | Not Occupied | — | — |
| 16 | 0.5 | D-BU/RD | 7632 | Integrated Trailer Brake Controller Switch 5V Reference | I | — |
| 17 | — | — | — | Not Occupied | — | — |
| 18 | 0.5 | BN | 7634 | Integrated Trailer Brake Controller Redundant Manual Apply Signal | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 19 | 0.5 | BK/BN | 7631 | Integrated Trailer Brake Controller Switch Low Reference | I | — |
| 20 | 0.5 | YE | 7635 | Integrated Trailer Brake Controller Manual Apply Signal | I | — |
| 21 | 0.5 | L-GN/BK | 7633 | Integrated Trailer Brake Controller User Gain Signal | I | — |
| 22 | 0.5 | YE/BK | 2224 | Trailer Brake Enable Signal | I | — |
| 23 | 0.5 | WH/BK | 2223 | Trailer Brake Control Signal | I | — |
| 24 | — | — | — | Not Occupied | — | — |
| 25 | 0.75 | VT/L-GN | 439 | Run/Crank Ignition 1 Voltage | II | — |
| 26 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 27 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 28 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 29 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 30 | 0.5 | L-GN/VT | 4114 | Local Interconnect Network Serial Data Bus 14 | I | — |
| 31 - 38 | — | — | — | Not Occupied | — | — |

## K40 Seat Memory Control Module X1



### Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 7283-6458-40

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 6.3 Series (L-GY)

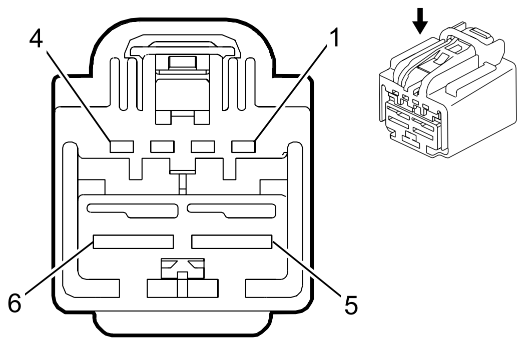
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-42 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K40 Seat Memory Control Module X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | RD/BN | 1140 | Battery Positive Voltage | I | — |
| 2 | 2.5 | RD/YE | 5040 | Battery Positive Voltage | I | — |

## K40 Seat Memory Control Module X2



### Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 7283-9749-30

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F YESC Kaizen Series (BK)

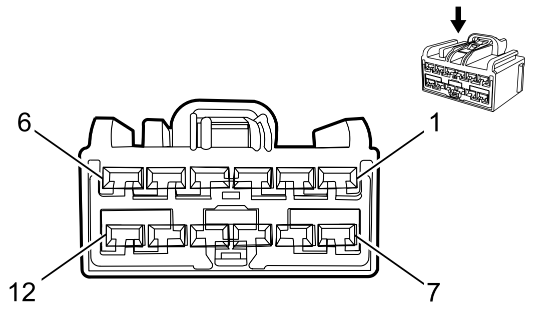
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-42 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K40 Seat Memory Control Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.5 | L-GN/WH | 7530 | Local Interconnect Network Serial Data Bus 8 | I | — |
| 4 | — | — | — | Not Occupied | — | — |
| 5 | 2.5 | BK | 1150 | Ground | II | — |
| 6 | — | — | — | Not Occupied | — | — |

## K40 Seat Memory Control Module X3



### Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 7283-6467-40

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way F 2.8 Kaizen Series (L-GY)

### *Terminal Part Information*

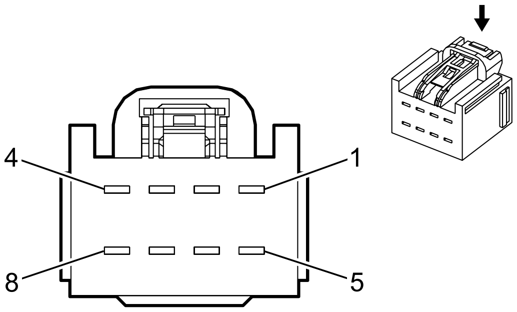
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K40 Seat Memory Control Module X3*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 1.5 | L-GN/YE | 276 | Driver Power Seat Recline Motor Forward Control | I | — |
| 2 | 1.5 | L-BU/YE | 277 | Driver Power Seat Recline Motor Rearward Control | I | — |
| 3 | 1.5 | L-GN/BN | 286 | Driver Power Seat Front Vertical Motor Up Control | I | — |
| 4 | 1.5 | L-BU/VT | 287 | Driver Power Seat Front Vertical Motor Down Control | I | — |
| 5 | 1.5 | YE | 282 | Driver Power Seat Rear Vertical Motor Up Control | I | — |
| 6 | 1.5 | GY/L-BU | 283 | Driver Power Seat Rear Vertical Motor Down Control | I | — |
| 7 | 1.5 | YE/BN | 768 | Driver Power Seat Lumbar Motor Up Control | I | — |
| 8 | 1.5 | YE/L-BU | 767 | Driver Power Seat Lumbar Motor Down Control | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | 1.5 | L-BU | 611 | Driver Power Seat Lumbar Motor Forward Control | I | — |
| 10 | 1.5 | VT | 610 | Driver Power Seat Lumbar Motor Rearward Control | I | — |
| 11 | 1.5 | YE/L-BU | 285 | Driver Power Seat Horizontal Motor Forward Control | I | — |
| 12 | 1.5 | GY/L-GN | 284 | Driver Power Seat Horizontal Motor Rearward Control | I | — |

## K40 Seat Memory Control Module X4



### Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 7283-3243-40

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F 2.8 Series (L-GY)

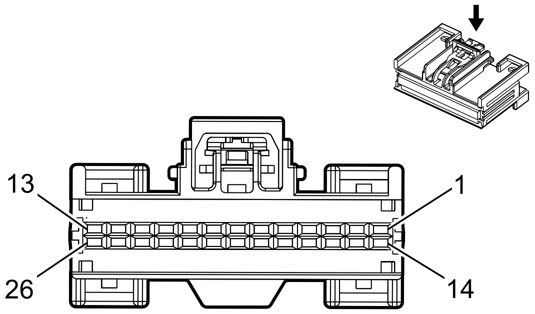
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K40 Seat Memory Control Module X4*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 1.5 | L-GN/VT | 5130 | Adjustable Pedal Actuator Forward Control | I | — |
| 2 | 1.5 | YE | 5129 | Adjustable Pedal Actuator Rearward Control | I | — |
| 3 - 8 | — | — | — | Not Occupied | — | — |

## K40 Seat Memory Control Module X5



### Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 7287-2043-30

Service Connector: Service by Harness - See Part Catalog

Description: 26-Way F 0.64 Series (BK)

### *Terminal Part Information*

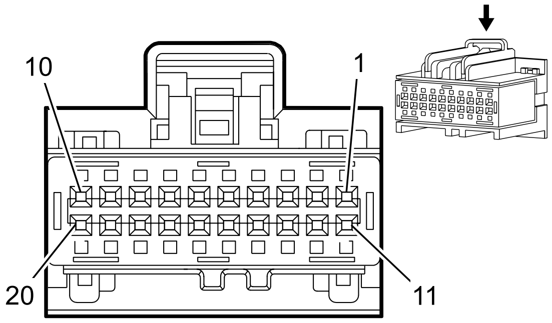
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K40 Seat Memory Control Module X5*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | WH/RD | 3298 | Memory Sensor High Reference 2 | I | — |
| 2 - 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.5 | BN | 3038 | Right Rear Haptic Seat Motor Control | I | — |
| 5 | 0.5 | YE/BN | 3037 | Left Rear Haptic Seat Motor Control | I | — |
| 6 | 0.5 | BK/GY | 6206 | Memory Sensor Low Reference | I | — |
| 7 | 0.5 | YE/BN | 1522 | Power Seat Horizontal Forward Switch Signal | I | — |
| 8 | 0.5 | GY/L-GN | 1523 | Power Seat Horizontal Rearward Switch Signal | I | — |
| 9 | 0.5 | L-GN/BN | 1518 | Power Seat Front Vertical Up Switch Signal | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 10 | 0.5 | L-BU/VT | 1520 | Power Seat Front Vertical Down Switch Signal | I | — |
| 11 | 0.5 | L-GN | 569 | Memory Seat Horizontal Motor Position Sensor Signal | I | — |
| 12 | 0.5 | BN/WH | 557 | Memory Seat Front Vertical Motor Position Sensor Signal | I | — |
| 13 | 0.5 | WH/RD | 6207 | Memory Sensor High Reference | I | — |
| 14 | 0.5 | YE | 1065 | Driver Seat Lumbar Forward Switch Signal | I | — |
| 15 | 0.5 | L-BU/VT | 1064 | Driver Seat Lumbar Rearward Switch Signal | I | — |
| 16 | 0.5 | WH | 1066 | Driver Seat Lumbar Up Switch Signal | I | — |
| 17 | 0.5 | YE/BK | 1067 | Driver Seat Lumbar Down Switch Signal | I | — |
| 18 | — | — | — | Not Occupied | — | — |
| 19 | 0.5 | YE | 1519 | Power Seat Rear Vertical Up Switch Signal | I | — |
| 20 | 0.5 | YE/L-BU | 1521 | Power Seat Rear Vertical Down Switch Signal | I | — |
| 21 | 0.5 | GY/BK | 1269 | Power Seat Recline Forward Switch Signal | I | — |
| 22 | 0.5 | L-GN/GY | 1270 | Power Seat Recline Rearward Switch Signal | I | — |
| 23 - 24 | — | — | — | Not Occupied | — | — |
| 25 | 0.5 | YE/L-BU | 568 | Memory Seat Rear Vertical Motor Position Sensor Signal | I | — |
| 26 | 0.5 | WH/BK | 570 | Driver Memory Seat Recline Motor Position Sensor Signal | I | — |

## K40 Seat Memory Control Module X6



### Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 31410-1201

Service Connector: Service by Harness - See Part Catalog

Description: 20-Way F 64 Series, Sealed (GY)

### *Terminal Part Information*

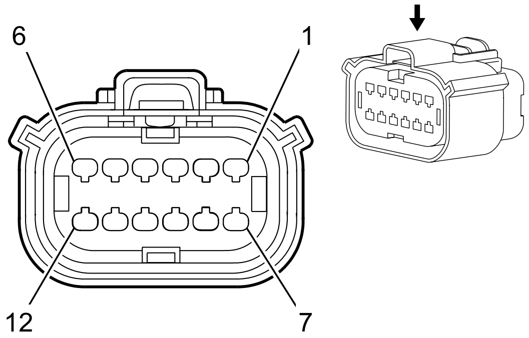
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K40 Seat Memory Control Module X6*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.35 | L-BU | 5952 | Adjustable Pedal Position Sensor Brake Signal | I | — |
| 5 | — | — | — | Not Occupied | — | — |
| 6 | 0.35 | L-GN/GY | 5286 | Adjustable Pedal Switch Forward Signal | I | — |
| 7 | 0.35 | WH/GY | 5285 | Adjustable Pedal Switch Rearward Signal | I | — |
| 8 - 10 | — | — | — | Not Occupied | — | — |
| 11 | 0.35 | BK/L-BU | 5978 | Memory Switch Low Reference | I | — |
| 12 | 0.35 | WH | 615 | Memory Seat Switch Signal 1 | I | — |
| 13 - 14 | — | — | — | Not Occupied | — | — |
| 15 | 0.35 | L-GN/L-BU | 614 | Memory Seat Switch Set Signal | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 16 - 20 | — | — | — | Not Occupied | — | — |

# K43 Power Steering Control Module



## Connector Part Information

Harness Type: Chassis

OEM Connector: 13595088

Service Connector: 19150019

Description: 12-Way F 1.5 Series, Sealed (BK)

## *Terminal Part Information*

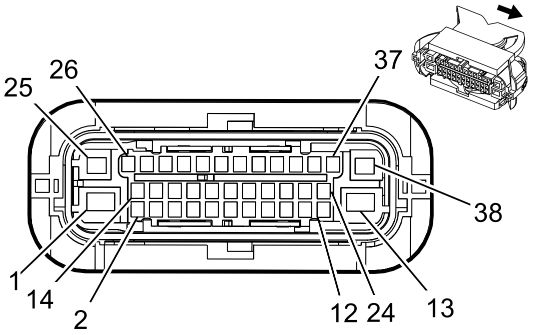
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | 19300635 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |

## *K43 Power Steering Control Module*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | — |
| 2 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | — |
| 3 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | II | — |
| 4 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | II | — |
| 5 | 0.5 | RD/WH | 2740 | Battery Positive Voltage | II | — |
| 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | — |
| 8 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | II | — |
| 10 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | II | — |
| 11 | 0.75 | BK | 2150 | Ground | I | — |
| 12 | 0.5 | WH/D-BU | 5986 | Serial Data Communication Enable | II | — |

## K44 Power Take-Off Control Module X1



### Connector Part Information

Harness Type: Engine

OEM Connector: 15498534

Service Connector: 19329924

Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK)

### *Terminal Part Information*

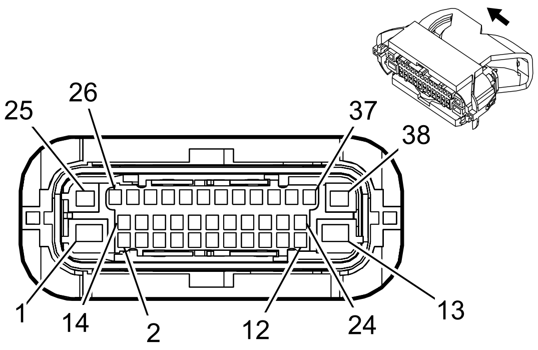
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13582180 | J-35616-14 (GN) | J-38125-560 | 1241374-1 | Lear 17 | E | 2 |
| II | 19119560 | J-35616-40 (BU) | J-38125-556 | 1241408-1 | Lear 28 | C | A |
| III | 19119772 | J-35616-35 (VT) | J-38125-557 | 1241388-1 | Lear 17 | E | C |
| IV | 19353101 | J-35616-40 (BU) | J-38125-556 | Not Available | Not Available | Not Available | Not Available |

### *K44 Power Take-Off Control Module X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | RD/D-BU | 4540 | Battery Positive Voltage | IV | — |
| 2 - 12 | — | — | — | Not Occupied | — | — |
| 13 | 1.5 | BK/WH | 451 | Signal Ground | II | — |
| 14 | 0.5 | WH/D-BU | 5986 | Serial Data Communication Enable | I | — |
| 15 | 0.5 | L-GN/WH | 488 | Power Take Off Control Switch | I | — |
| 16 - 17 | — | — | — | Not Occupied | — | — |
| 18 | 0.5 | BN/L-GN | 4311 | Power Take Off Enable In Cab Switch Normally Closed Signal | I | — |
| 19 - 24 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 19 - 24 | — | — | — | Not Occupied | — | — |
| 25 | 0.75 | BN/WH | 6085 | Power Take Off Remote Engine Start Switch Signal | III | — |
| 26 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 27 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 28 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 29 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 30 - 38 | — | — | — | Not Occupied | — | — |

## K44 Power Take-Off Control Module X2



### Connector Part Information

Harness Type: Engine

OEM Connector: 13655518

Service Connector: 19303771

Description: 38-Way F 1.5 CTS, 2.8 MCP, 4.8 MCP Series, Sealed (BK with BN Inner Connector)

### *Terminal Part Information*

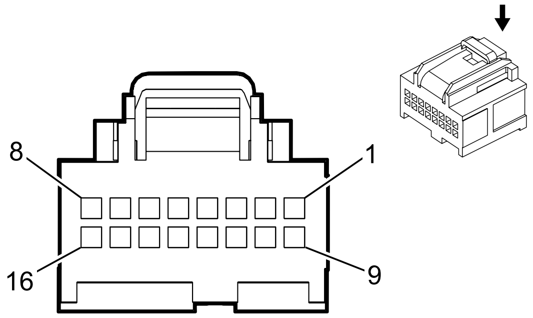
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19119381 | J-35616-14 (GN) | J-38125-215A | Not Available | Not Available | Not Available | Not Available |

### *K44 Power Take-Off Control Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.75 | YE | 2522 | Power Take Off Status Signal | I | — |
| 9 - 10 | — | — | — | Not Occupied | — | — |
| 11 | 0.5 | VT/D-BU | 2562 | Power Take Off Relay Coil Control | I | — |
| 12 - 27 | — | — | — | Not Occupied | — | — |
| 28 | 0.5 | WH/L-GN | 6142 | Power Take Off Engine Shutdown Signal | I | — |
| 29 - 34 | — | — | — | Not Occupied | — | — |
| 35 | 0.5 | D-BU/GY | 6089 | Power Take Off Remote Switch Set Signal 1 | I | — |
| 36 | 0.75 | D-BU/BN | 4408 | Power Take Off Enable Signal | I | — |
| 37 | 0.75 | BN | 6381 | Power Take Off Relay Engage Signal | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 38 | — | — | — | Not Occupied | — | — |

# K56 Serial Data Gateway Module X1



## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13819409

Service Connector: 13582576

Description: 16-Way F 0.64 OCS Series (BK)

## *Terminal Part Information*

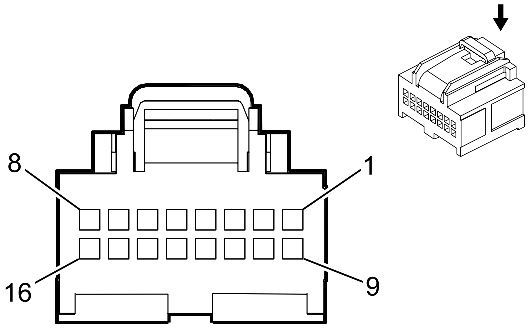
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300660 | J-35616-64B (LT BU) | J-38125-12A | Not Available | Not Available | Not Available | Not Available |

## *K56 Serial Data Gateway Module X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | RD/VT | 3340 | Battery Positive Voltage | I | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.35 | D-BU/L-GN | 1304 | High Speed GMLAN Serial Data (+)9 | I | — |
| 4 | 0.35 | WH/L-GN | 1305 | High Speed GMLAN Serial Data (-)9 | I | — |
| 5 | — | — | — | Not Occupied | — | — |
| 6 | 0.75 | BK/WH | 1851 | Signal Ground | I | E29 |
|  | 0.35 | BK/WH | 1851 | Signal Ground | I | -E29 |
| 7 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 8 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.35 | WH/D-BU | 5986 | Serial Data Communication Enable | I | — |
| 11 | 0.35 | D-BU/L-GN | 1304 | High Speed GMLAN Serial Data (+)9 | I | — |
| 12 | 0.35 | WH/L-GN | 1305 | High Speed GMLAN Serial Data (-)9 | I | — |
| 13 | 0.35 | D-BU/L-GN | 1304 | High Speed GMLAN Serial Data (+)9 | I | — |
| 14 | 0.35 | WH/L-GN | 1305 | High Speed GMLAN Serial Data (-)9 | I | — |
| 15 | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |
| 16 | — | — | — | Not Occupied | — | — |

## K56 Serial Data Gateway Module X2



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13781484

Service Connector: 13582575

Description: 16-Way F 0.64 OCS Series (GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300660 | J-35616-64B (LT BU) | J-38125-12A | Not Available | Not Available | Not Available | Not Available |

### *K56 Serial Data Gateway Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 2 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 3 | 0.35 | D-BU/GY | 3935 | High Speed GMLAN Serial Data (+) 8 | I | — |
| 4 | 0.35 | WH/GY | 3936 | High Speed GMLAN Serial Data (-) 8 | I | — |
| 5 | 0.35 | D-BU/GY | 3935 | High Speed GMLAN Serial Data (+) 8 | I | — |
| 6 | 0.35 | WH/GY | 3936 | High Speed GMLAN Serial Data (-) 8 | I | — |
| 7 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | I | — |
| 8 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | GY/L-GN | 1102 | Low Speed GMLAN Serial Data #2 | I | — |
| 11 - 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.35 | D-BU/GY | 3935 | High Speed GMLAN Serial Data (+) 8 | I | — |
| 14 | 0.35 | WH/GY | 3936 | High Speed GMLAN Serial Data (-) 8 | I | — |
| 15 | 0.5 | D-BU/YE | 6105 | High Speed GMLAN Serial Data (+) 2 | I | — |
| 16 | 0.5 | WH | 6106 | High Speed GMLAN Serial Data (-) 2 | I | — |

# K59 Starter/Generator Control Module X5

GRAPHIC
PENDING

## Connector Part Information

Harness Type: High Voltage Body

OEM Connector: 33199304

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F Power Pack 1000 Series, Sealed (OG)

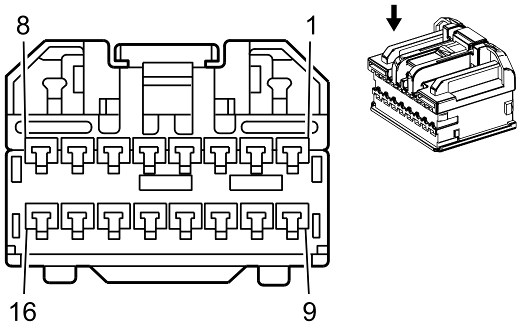
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *K59 Starter/Generator Control Module X5*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 12 | OG | 5084 | High Voltage Battery (+) | I | — |
| B | 12 | OG | 5083 | High Voltage Battery (-) | I | — |

## K69 Transfer Case Control Module X1



### Connector Part Information

Harness Type: Brake Clutch

OEM Connector: 13547237

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way F 1.5 Series (GY)

### *Terminal Part Information*

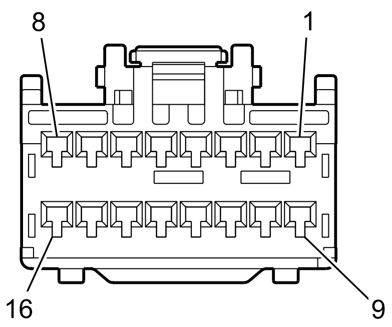
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

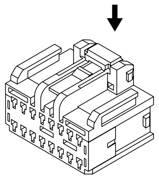
### *K69 Transfer Case Control Module X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/BK | 7478 | Rotary Position Sensor Low Reference | I | — |
| 2 | 0.5 | WH/L-GN | 7479 | Rotary Position Sensor Signal | I | — |
| 3 | 0.35 | YE | 7474 | Incremental Encoder Direction Signal | I | — |
| 4 | 0.5 | GY/BK | 1570 | Front Axle Actuator Control | I | — |
| 5 | 0.35 | D-BU/GY | 7473 | Incremental Encoder Impulse Signal | I | — |
| 6 | 0.35 | GY/RD | 6029 | Four Wheel Drive Mode Switch 5V Reference | I | — |
| 7 | 0.35 | D-BU/YE | 1693 | Four Wheel Drive Switch Signal | I | — |
| 8 | — | — | — | Not Occupied | — | — |
|  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | 0.5 | WH/RD | 7477 | Rotary Position Sensor 5V Reference | I | — |
| 10 | 0.35 | WH/L-GN | 7475 | Incremental Encoder Sensor 8V Reference | I | — |
| 11 | 0.35 | VT | 7476 | Incremental Encoder Sensor Low Reference | I | — |
| 12 | 0.5 | YE/WH | 1695 | Four Wheel Drive Wheel Lock Indicator Control | I | — |
| 13 | 1 | YE/BN | 1569 | Transfer Case Lock Solenoid Control | I | — |
| 14 - 16 | — | — | — | Not Occupied | — | — |

## K69 Transfer Case Control Module X2





### Connector Part Information

Harness Type: Brake Clutch

OEM Connector: 15489823

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way F 1.5 Series (BK)

### *Terminal Part Information*

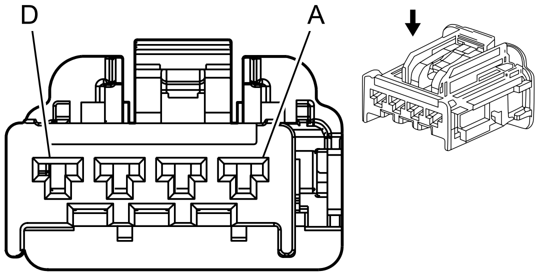
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K69 Transfer Case Control Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.35 | VT/WH | 1565 | 4 LO Indicator Control | I | — |
| 4 | 0.35 | VT/L-GN | 1739 | Run/Crank Ignition 1 Voltage | I | — |
| 5 | — | — | — | Not Occupied | — | — |
| 6 | 0.35 | VT/YE | 5985 | Accessory Wakeup Serial Data | I | — |
| 7 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 8 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |
| 9 - 10 | — | — | — | Not Occupied | — | — |
| 11 | 0.35 | GY/L-GN | 1561 | AWD Indicator Control | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 12 | 0.35 | BN | 1560 | Neutral Indicator Control | I | — |
| 13 | 0.35 | L-GN/BK | 1563 | 2 HI Indicator Control | I | — |
| 14 | 0.35 | BN/BK | 1566 | 4 HI Indicator Control | I | — |
| 15 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | I | — |
| 16 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | I | — |

## K69 Transfer Case Control Module X3



### Connector Part Information

Harness Type: Brake Clutch

OEM Connector: 15466671

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 280 GT Series (L-GY)

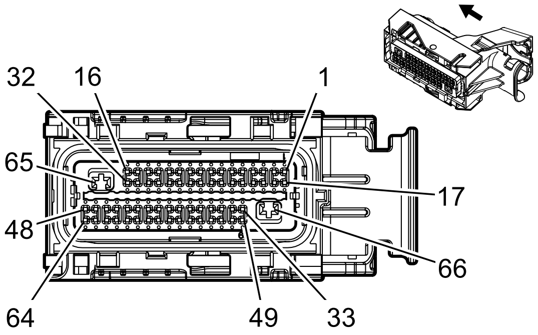
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K69 Transfer Case Control Module X3*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 4 | YE/VT | 1553 | Transfer Case Motor Counter Clockwise Control | I | — |
| B | 4 | YE/GY | 1552 | Transfer Case Motor Clockwise Control | I | — |
| C | 3 | RD/GY | 1342 | Battery Positive Voltage | I | — |
| D | 3 | BK | 550 | Ground | I | — |

# K71 Transmission Control Module



## Connector Part Information

Harness Type: Engine

OEM Connector: 13965710

Service Connector: 19329822

Description: 66-Way F 0.64, 2.8 Series, Sealed (BK with BK Terminal Position Assurance)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13505803 | J-35616-35 (VT) | J-38125-12A | 1326030-8 | Lear 17 | A | 4 |
| II | 13575812 | J-35616-64B (LT BU) | J-38125-213 | Not Available | Not Available | Not Available | Not Available |

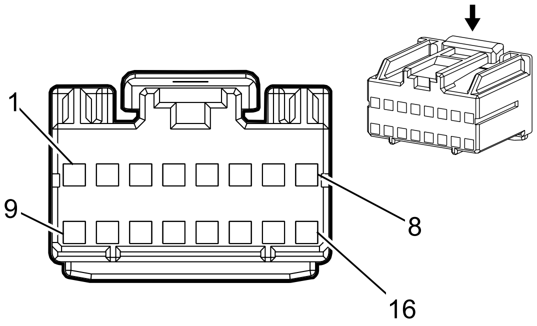
## *K71 Transmission Control Module*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | — | Not Occupied | — | — |
| 2 | 0.75 | D-BU | 6401 | Clutch B Control | II | — |
| 3 - 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.5 | YE/L-GN | 4170 | Transmission Position Sensor B 9V Reference | II | NQF/NQG |
|  | 0.75 | YE/L-GN | 4170 | Transmission Position Sensor B 9V Reference | II | -NQF/NQG |
| 8 | 0.75 | YE/D-BU | 4171 | Transmission Position Sensor A 9V Reference | II | — |
| 9 | 0.75 | WH/BN | 1226 | Transmission Fluid Pressure Switch Signal Bit 3 | II | — |
| 10 | 0.75 | L-GN/BK | 2529 | Transmission Fluid Pressure Switch Signal Bit 4 | II | — |
| 11 - 13 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14 | 0.5 | GY/D-BU | 6358 | Output Speed Signal | II | NQF/NQG |
| | 0.75 | GY/D-BU | 6358 | Output Speed Signal | II | -NQF/NQG |
| 15 | 0.75 | L-GN/YE | 6353 | Input Speed Signal | II | — |
| 16 | — | — | — | Not Occupied | — | — |
| 17 | 0.75 | WH | 4508 | Transmission Clutch G Control | II | — |
| 18 | 0.75 | BN | 6400 | Clutch A Control | II | — |
| 19 | 0.75 | GY | 6402 | Clutch C Control | II | — |
| 20 | — | — | — | Not Occupied | — | — |
| 21 | 0.75 | WH/BN | 2527 | Shift Solenoid Control 5 | II | — |
| 22 | — | — | — | Not Occupied | — | — |
| 23 | 0.75 | WH/L-GN | 1222 | 1 Shift Solenoid Valve Control | II | — |
| 24 | 0.75 | YE/BK | 1223 | 2 Shift Solenoid Valve Control | II | — |
| 25 | — | — | — | Not Occupied | — | — |
| 26 | 0.5 | WH/BK | 5983 | PRNDL C Signal | II | — |
| 27 | 0.5 | VT/WH | 5981 | PRNDL A Signal | II | — |
| 28 | 0.75 | BK/BN | 586 | Transmission Oil Temperature Sensor Low Reference | II | — |
| 29 - 32 | — | — | — | Not Occupied | — | — |
| 33 | 0.75 | L-GN/GY | 6387 | Transmission High Side Driver 1 Signal Driver | II | — |
| 34 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 35 | 0.5 | VT/BK | 2139 | Run/Crank Ignition 1 Voltage | II | — |
| 36 | 0.75 | L-GN/VT | 1225 | Transmission Fluid Pressure Switch Signal Bit 2 | II | — |
| 37 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | — |
| 38 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | — |
| 39 - 48 | — | — | — | Not Occupied | — | — |
| 49 | 0.75 | GY/BN | 6388 | Transmission High Side Driver 2 Signal | II | — |
| 50 | — | — | — | Not Occupied | — | — |
| 51 | 0.5 | VT/YE | 5985 | Accessory Wakeup Serial Data | II | — |
| 52 | 0.75 | VT/GY | 1224 | Transmission Fluid Pressure Switch Signal Bit 1 | II | — |
| 53 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | — |
| 54 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | — |
| 55 | 0.5 | GY/WH | 4168 | PRNDL P Signal | II | — |
| 56 - 57 | — | — | — | Not Occupied | — | — |
| 58 | 0.5 | GY/BN | 5982 | PRNDL B Signal | II | — |
| 59 - 62 | — | — | — | Not Occupied | — | — |
| 63 | 0.75 | BN/WH | 585 | Transmission Oil Temperature Sensor Signal | II | — |
| 64 | — | — | — | Not Occupied | — | — |
| 65 | 1.5 | BK/WH | 451 | Signal Ground | I | — |
| 66 | 1.5 | RD/L-GN | 1840 | Battery Positive Voltage | I | — |

## K73 Telematics Communication Interface Control Module X1



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 15431362

Service Connector: 15306351

Description: 16-Way F 100A Micro-Pack Series (NA)

### *Terminal Part Information*

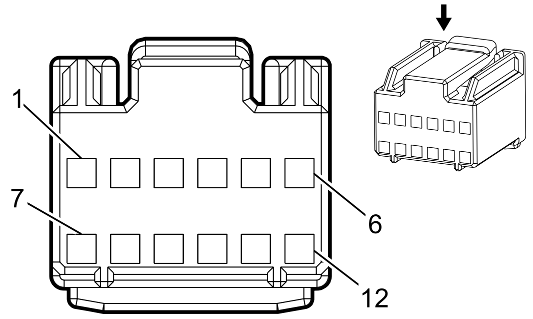
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575546 | J-35616-16 (LT GN) | J-38125-559 | 15445905 | Delphi 23 | J | J |

### *K73 Telematics Communication Interface Control Module X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/L-GN | 1102 | Low Speed GMLAN Serial Data #2 | I | — |
| 2 | 0.35 | BN/WH | 2517 | Keypad Red LED Control | I | — |
| 3 | 0.35 | YE/VT | 2516 | Keypad Green LED Control | I | — |
| 4 - 5 | — | — | — | Not Occupied | — | — |
| 6 | 0.35 | L-GN/BK | 2515 | Keypad Control | I | — |
| 7 | 0.35 | BK | 2550 | Ground | I | — |
| 8 - 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.35 | D-BU/L-GN | 1304 | High Speed GMLAN Serial Data (+)9 | I | — |
| 11 | 0.35 | L-GN/WH | 2514 | Keypad Signal | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 12 | 0.35 | WH/L-GN | 1305 | High Speed GMLAN Serial Data (-)9 | I | — |
| 13 - 14 | — | — | — | Not Occupied | — | — |
| 15 | 0.35 | RD/D-BU | 3240 | Battery Positive Voltage | I | — |
| 16 | — | — | — | Not Occupied | — | — |

# K73 Telematics Communication Interface Control Module X2



## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 15431365

Service Connector: 88952886

Description: 12-Way F 100A Micro-Pack Series (NA)

## *Terminal Part Information*

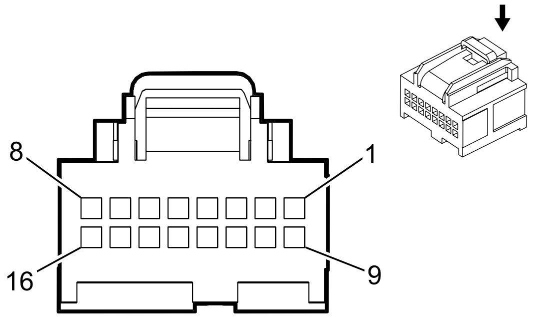
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575546 | J-35616-16 (LT GN) | J-38125-559 | 15445905 | Delphi 23 | J | J |

## *K73 Telematics Communication Interface Control Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | YE | 658 | Cellular Telephone Voice Signal | I | — |
| 2 | 0.35 | BK/YE | 659 | Cellular Telephone Voice Low Reference | I | — |
| 3 | 0.5 | D-BU/L-GN | 1304 | High Speed GMLAN Serial Data (+)9 | I | — |
| 4 | 0.5 | WH/L-GN | 1305 | High Speed GMLAN Serial Data (-)9 | I | — |
| 5 | 0.5 | BARE | 1792 | Low Reference | I | — |
| 6 | 0.35 | GY/YE | 5149 | Voice Recognition Audio Signal | I | — |
| 7 | 0.35 | WH/D-BU | 5986 | Serial Data Communication Enable | I | — |
| 8 | 0.35 | BARE | 1782 | Low Reference | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 9 | 0.35 | D-BU | 655 | Cellular Telephone Microphone Signal | I | — |
| 10 | 0.35 | BK/BN | 654 | Cellular Telephone Microphone Low Reference | I | — |
| 11 | — | — | — | Not Occupied | — | — |
| 12 | 0.35 | BK/GY | 5152 | Voice Recognition Audio Low Reference | I | — |

## K74 Human Machine Interface Control Module X1



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13819409

Service Connector: 13582576

Description: 16-Way F 0.64 OCS Series (BK)

### *Terminal Part Information*

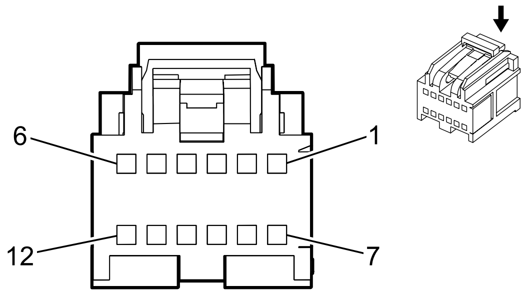
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300660 | J-35616-64B (LT BU) | J-38125-12A | Not Available | Not Available | Not Available | Not Available |

### *K74 Human Machine Interface Control Module X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | GY/YE | 5149 | Voice Recognition Audio Signal | I | UE1 |
|  | 0.35 | D-BU | 655 | Cellular Telephone Microphone Signal | I | -UE1 |
| 2 | 0.35 | BK/GY | 5152 | Voice Recognition Audio Low Reference | I | UE1 |
|  | 0.35 | BK/BN | 654 | Cellular Telephone Microphone Low Reference | I | -UE1 |
| 3 - 4 | — | — | — | Not Occupied | — | — |
| 5 | 0.35 | WH/D-BU | 5986 | Serial Data Communication Enable | I | — |
| 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.75 | RD/VT | 340 | Battery Positive Voltage | I | — |
| 8 | 0.75 | BK | 2550 | Ground | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | 0.5 | L-GN/WH | 7527 | Local Interconnect Network Serial Data Bus 5 | I | — |
| 10 | — | — | — | Not Occupied | — | — |
| 11 | 0.5 | D-BU/L-GN | 1304 | High Speed GMLAN Serial Data (+)9 | I | UE1 |
|  | 0.35 | D-BU/L-GN | 1304 | High Speed GMLAN Serial Data (+)9 | I | -UE1 |
| 12 | 0.5 | WH/L-GN | 1305 | High Speed GMLAN Serial Data (-)9 | I | UE1 |
|  | 0.35 | WH/L-GN | 1305 | High Speed GMLAN Serial Data (-)9 | I | -UE1 |
| 13 | 0.5 | D-BU/L-GN | 1304 | High Speed GMLAN Serial Data (+)9 | I | — |
| 14 | 0.5 | WH/L-GN | 1305 | High Speed GMLAN Serial Data (-)9 | I | — |
| 15 - 16 | — | — | — | Not Occupied | — | — |

# K74 Human Machine Interface Control Module X2



## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 33104389

Service Connector: 13594072

Description: 12-Way F 0.64 OCS Series (GY)

## *Terminal Part Information*

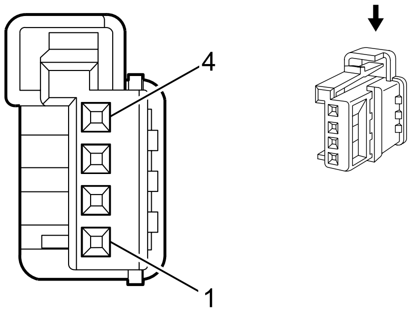
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300660 | J-35616-64B (LT BU) | J-38125-12A | Not Available | Not Available | Not Available | Not Available |

## *K74 Human Machine Interface Control Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | WH/VT | 3999 | MOST Control | I | — |
| 2 | 0.5 | WH/L-GN | 3997 | MOST Serial Data (-) | I | — |
| 3 | 0.5 | GY/VT | 3998 | MOST Serial Data (+) | I | — |
| 4 | — | — | — | Not Occupied | — | — |
| 5 | 0.35 | GY/YE | 6972 | Camera Signal 2 + | I | — |
| 6 | 0.35 | WH/D-BU | 6973 | Camera Signal 2 | I | — |
| 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.5 | GY/VT | 3998 | MOST Serial Data (+) | I | — |
| 9 | 0.5 | WH/L-GN | 3997 | MOST Serial Data (-) | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 10 - 12 | — | — | — | Not Occupied | — | — |

## K77 Remote Control Door Lock Receiver



### Connector Part Information

Harness Type: Body

OEM Connector: 10768790

Service Connector: 13584096

Description: 4-Way F 0.64 Micro-Quadlock Series (BK)

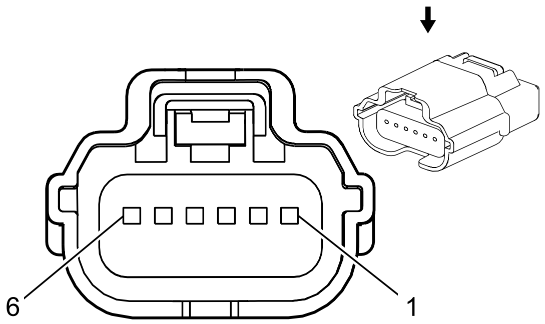
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K77 Remote Control Door Lock Receiver*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | GY | 3273 | Remote Function Actuator Low Reference | I | — |
| 2 | 0.35 | YE/L-GN | 3274 | Remote Function Actuator Transmit Signal | I | — |
| 3 | 0.35 | D-BU/WH | 3275 | Remote Function Actuator Receive Signal | I | — |
| 4 | 0.35 | GY/WH | 3272 | Remote Function Actuator Control | I | — |

## K85 Passenger Presence Module



### Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 31404-6132

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F 0.64 Series, Sealed (BK)

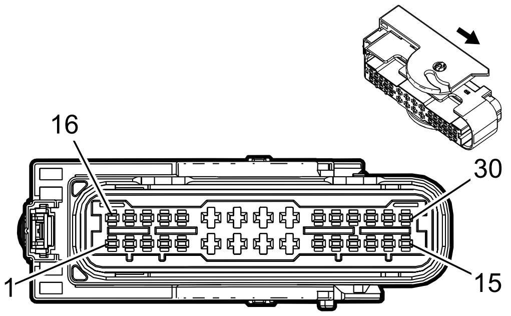
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K85 Passenger Presence Module*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | RD/L-GN | 4440 | Battery Positive Voltage | I | — |
| 2 | 0.35 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |
| 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.35 | BK/WH | 2751 | Signal Ground | I | — |
| 5 | 0.35 | L-BU/RD | 5612 | Passenger Seat Belt Tension Sensor 5V Reference | I | — |
| 6 | 0.35 | VT/OG | 5611 | Passenger Seat Belt Tension Sensor Signal | I | — |

# K111 Fuel Pump Driver Control Module (Heavy Duty+L5P)



## Connector Part Information

Harness Type: Chassis

OEM Connector: 13888308

Service Connector: 19354086

Description: 30-Way F 1.5, 2.8 Series, Sealed (BK)

## *Terminal Part Information*

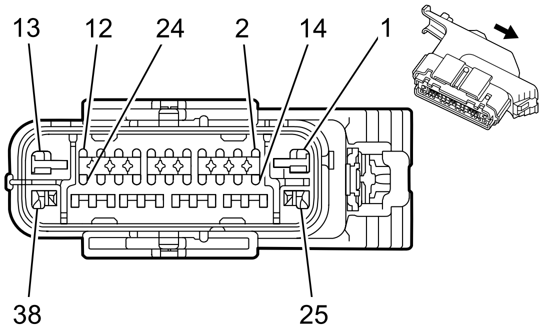
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300440 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| II | 19329958 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

## *K111 Fuel Pump Driver Control Module (Heavy Duty+L5P)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.5 | BN/VT | 455 | Fuel Filter Temperature Signal | II | — |
| 5 | 0.5 | D-BU/YE | 6861 | Water In Fuel Sensor Signal | II | — |
| 6 | — | — | — | Not Occupied | — | — |
| 7 | 2.5 | RD/VT | 1940 | Battery Positive Voltage | I | — |
| 8 | 2.5 | GY | 120 | Fuel Pump Control | I | — |
| 9 | 2.5 | YE/GY | 4137 | Fuel Pump Supply Voltage Phase 2 | I | — |
| 10 - 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.5 | D-BU/VT | 1589 | Primary Fuel Level Sensor Signal | II | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 14 | 0.5 | D-BU/WH | 1937 | Secondary Fuel Level Sensor Signal | II | — |
| 15 | 0.5 | WH | 4499 | High Speed GMLAN Serial Data (-) 7 | II | — |
| 16 | 0.5 | VT/D-BU | 3674 | NOx Sensor 1 Control | II | — |
| 17 | 0.75 | VT/L-GN | 439 | Run/Crank Ignition 1 Voltage | II | — |
| 18 | 0.5 | L-GN/GY | 465 | Fuel Pump Primary Relay Control | II | — |
| 19 | 0.5 | BK/VT | 412 | Fuel Filter Temperature Sensor Low Reference | II | — |
| 20 - 21 | — | — | — | Not Occupied | — | — |
| 22 | 2.5 | BK | 2150 | Ground | I | — |
| 23 | 0.5 | BK | 7444 | Fuel System Control Module Shield Ground | I | — |
| 24 | 2.5 | WH/BN | 4138 | Fuel Pump Supply Voltage Phase 3 | I | — |
| 25 | 0.5 | BK/D-BU | 6863 | Water In Fuel Sensor Low Reference | II | — |
| 26 - 27 | — | — | — | Not Occupied | — | — |
| 28 | 0.5 | BK/L-GN | 6281 | Fuel Level Sensor Low Reference | II | — |
| 29 | 0.5 | BK/L-GN | 6281 | Fuel Level Sensor Low Reference | II | — |
| 30 | 0.5 | D-BU/BN | 4498 | High Speed GMLAN Serial Data (+) 7 | II | — |

# K38 Chassis Control Module (L96)



## Connector Part Information

Harness Type: Chassis

OEM Connector: 13518748

Service Connector: 19178089

Description: 38-Way F 0.64, 2.8 GT Series, Sealed (BK)

## *Terminal Part Information*

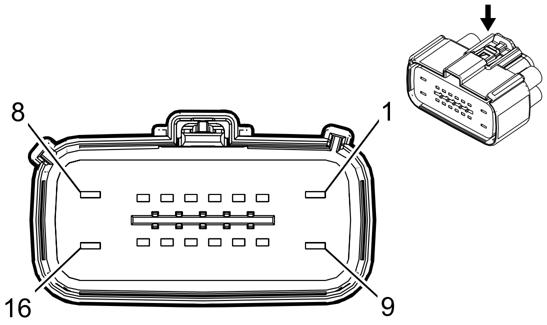
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575408 | J-35616-4A (PU) | J-38125-553 | Not Available | Not Available | Not Available | Not Available |
| II | 13576407 | J-35616-4A (PU) | J-38125-553 | 15304720 | Delphi 19 | 4 | 5 |
| III | 13578883 | J-35616-64B (LT BU) | J-38125-215A | SAITS-A03T-M064 | Yazaki 14 | 9 | 9 |
| IV | 13578924 | J-35616-64B (LT BU) | J-38125-215A | SAITS-A03T-M064 | Yazaki 14 | 9 | 9 |
| V | 13579766 | J-35616-64B (LT BU) | J-38125-215A | SAITS-A03T-M064 | Yazaki 14 | 9 | 9 |

## *K38 Chassis Control Module (L96)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | RD/VT | 1940 | Battery Positive Voltage | II | — |
| 2 - 4 | — | — | — | Not Occupied | — | — |
| 5 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | IV | — |
| 6 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | IV | — |
| 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.5 | VT/YE | 5985 | Accessory Wakeup Serial Data | III | — |
| 9 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | 0.5 | D-BU/WH | 7446 | Fuel Line Pressure Sensor Signal | III | — |
| 11 - 12 | — | — | — | Not Occupied | — | — |
| 13 | 2.5 | GY | 120 | Fuel Pump Control | I | — |
| 14 - 16 | — | — | — | Not Occupied | — | — |
| 17 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | IV | — |
| 18 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | IV | — |
| 19 | — | — | — | Not Occupied | — | — |
| 20 | 0.5 | L-GN/GY | 465 | Fuel Pump Primary Relay Control | III | — |
| 21 | 0.75 | VT/L-GN | 439 | Run/Crank Ignition 1 Voltage | V | — |
| 22 | 0.5 | BN/RD | 7445 | Fuel Line Pressure Sensor 5V Reference | III | — |
| 23 | 0.5 | BK/YE | 7447 | Fuel Line Pressure Sensor Low Reference | III | — |
| 24 | 0.5 | D-BU | 7444 | Fuel System Control Module Shield Ground | III | — |
| 25 | 2.5 | BK | 2150 | Ground | I | — |
| 26 - 37 | — | — | — | Not Occupied | — | — |
| 38 | 2.5 | BK/L-GN | 1580 | Fuel Pump Low Reference | I | — |

## K111 Fuel Pump Driver Control Module (Light Duty)



### Connector Part Information

Harness Type: Chassis

OEM Connector: 33103129

Service Connector: 13589631

Description: 16-Way F 1.5, 2.8 Series, Sealed (GY)

### *Terminal Part Information*

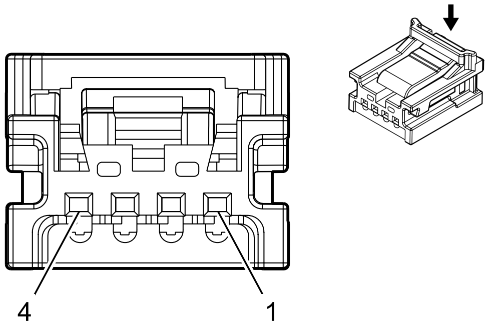
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13505803 | J-35616-35 (VT) | J-38125-12A | 1326030-8 | Lear 17 | 4 | D |
| II | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |

### *K111 Fuel Pump Driver Control Module (Light Duty)*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | RD/VT | 1940 | Battery Positive Voltage | I | — |
| 2 | 0.5 | GY | 5660 | Fuel Pump Controller Data Out Signal | II | — |
| 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.5 | D-BU/BK | 7493 | High Speed GMLAN Serial Data (+)3 | II | — |
| 5 | 0.5 | WH | 7494 | High Speed GMLAN Serial Data (-)3 | II | — |
| 6 | 0.5 | VT/L-GN | 439 | Run/Crank Ignition 1 Voltage | II | — |
| 7 | 0.5 | VT/YE | 5985 | Accessory Wakeup Serial Data | II | — |
| 8 | 2.5 | GY | 120 | Fuel Pump Control | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | 2.5 | BK | 2150 | Ground | I | — |
| 10 - 14 | — | — | — | Not Occupied | — | — |
| 15 | 0.5 | D-BU | 7444 | Fuel System Control Module Shield Ground | II | — |
| 16 | 2.5 | BK/L-GN | 1580 | Fuel Pump Low Reference | I | — |

# K112A Hybrid/EV Battery Interface Control Module 1 X1



## Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 33228283

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F Mini 50 Series (BK)

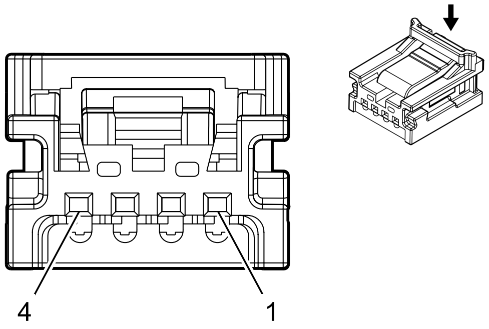
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *K112A Hybrid/EV Battery Interface Control Module 1 X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | L-GN | 1726 | Battery Cell Sensing Serial Data (-) 3 | I | — |
| 2 | 0.35 | WH/L-GN | 1725 | Battery Cell Sensing Serial Data (+) 3 | I | — |
| 3 | 0.35 | VT | 1759 | Battery Cell Sensing Serial Data (-) 4 | I | — |
| 4 | 0.35 | WH/VT | 1758 | Battery Cell Sensing Serial Data (+) 4 | I | — |

# K112A Hybrid/EV Battery Interface Control Module 1 X2



## Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 33228285

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F Mini 50 Series (GY)

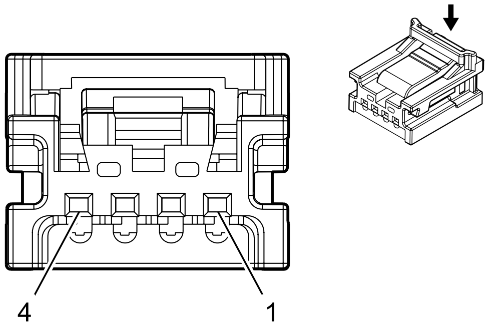
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *K112A Hybrid/EV Battery Interface Control Module 1 X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | D-BU | 1626 | Battery Cell Sensing Serial Data (-) 2 | I | — |
| 2 | 0.35 | WH/D-BU | 1625 | Battery Cell Sensing Serial Data (+) 2 | I | — |
| 3 | 0.35 | WH | 1511 | Battery Cell Sensing Serial Data (-) 1 | I | — |
| 4 | 0.35 | WH/BN | 1510 | Battery Cell Sensing Serial Data (+) 1 | I | — |

## K112B Hybrid/EV Battery Interface Control Module 2 X1



### Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 33228283

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F Mini 50 Series (BK)

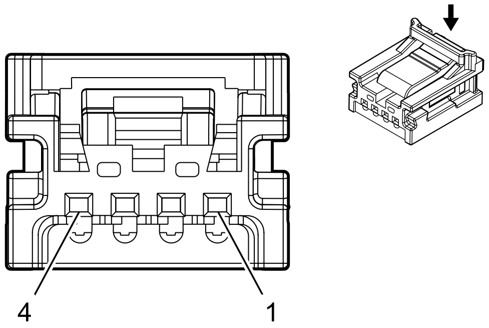
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K112B Hybrid/EV Battery Interface Control Module 2 X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | WH | 1511 | Battery Cell Sensing Serial Data (-) 1 | I | — |
| 2 | 0.35 | WH/BN | 1510 | Battery Cell Sensing Serial Data (+) 1 | I | — |
| 3 | 0.35 | WH | 1511 | Battery Cell Sensing Serial Data (-) 1 | I | — |
| 4 | 0.35 | WH/BN | 1510 | Battery Cell Sensing Serial Data (+) 1 | I | — |

## K112B Hybrid/EV Battery Interface Control Module 2 X2



### Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 33228285

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F Mini 50 Series (GY)

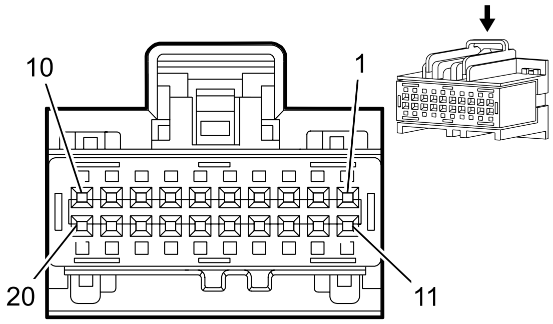
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | No Tool Required | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K112B Hybrid/EV Battery Interface Control Module 2 X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | VT | 1759 | Battery Cell Sensing Serial Data (-) 4 | I | — |
| 2 | 0.35 | WH/VT | 1758 | Battery Cell Sensing Serial Data (+) 4 | I | — |
| 3 | 0.35 | L-GN | 1726 | Battery Cell Sensing Serial Data (-) 3 | I | — |
| 4 | 0.35 | WH/L-GN | 1725 | Battery Cell Sensing Serial Data (+) 3 | I | — |

# K114B Hybrid/EV Powertrain Control Module 2 X1



## Connector Part Information

Harness Type: Body

OEM Connector: 13950640

Service Connector: 15126709

Description: 20-Way F USCAR 64 Series (BN)

## *Terminal Part Information*

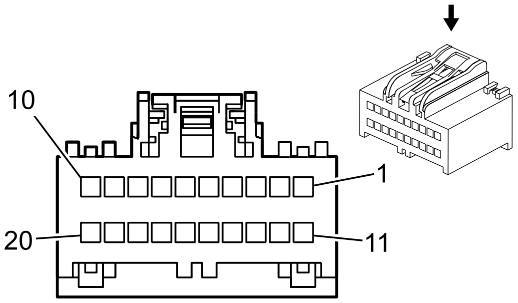
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300440 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |

## *K114B Hybrid/EV Powertrain Control Module 2 X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | WH | 7494 | High Speed GMLAN Serial Data (-)3 | I | — |
| 2 | 0.5 | D-BU/BK | 7493 | High Speed GMLAN Serial Data (+)3 | I | — |
| 3 - 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |
| 8 - 9 | — | — | — | Not Occupied | — | — |
| 10 | 0.5 | YE | 5530 | Hood Open Switch Signal | I | — |
| 11 | — | — | — | Not Occupied | — | — |
| 12 | 0.5 | WH | 7494 | High Speed GMLAN Serial Data (-)3 | I | — |
| 13 | 0.5 | D-BU/BK | 7493 | High Speed GMLAN Serial Data (+)3 | I | — |
| 14 - 19 | — | — | — | Not Occupied | — | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 14 - 19 | — | — | — | Not Occupied | — | — |
| 20 | 0.35 | D-BU/VT | 5599 | Fan Speed Signal 2 | I | — |

## K114B Hybrid/EV Powertrain Control Module 2 X2



### Connector Part Information

Harness Type: Body

OEM Connector: 13859758

Service Connector: 15126710

Description: 20-Way F USCAR 64 Series (GY)

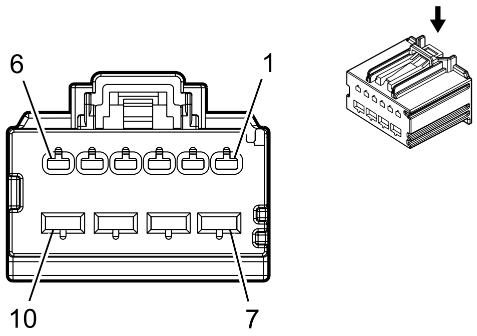
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300440 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |

### *K114B Hybrid/EV Powertrain Control Module 2 X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 - 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.35 | YE/L-GN | 5598 | Fan Speed Signal 1 | I | — |
| 5 - 8 | — | — | — | Not Occupied | — | — |
| 9 | 0.5 | VT/BK | 2139 | Run/Crank Ignition 1 Voltage | I | — |
| 10 - 20 | — | — | — | Not Occupied | — | — |

## K114B Hybrid/EV Powertrain Control Module 2 X3



### Connector Part Information

Harness Type: Body

OEM Connector: 33175128

Service Connector: 13596102

Description: 10-Way F 1.5, 2.8 Series (BK)

### *Terminal Part Information*

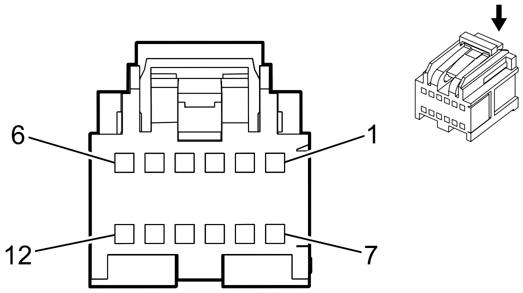
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13578893 | J-35616-35 (VT) | J-38125-11A | 7116-4110-02 | Yazaki 9 | E | C |
| II | 19300635 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |

### *K114B Hybrid/EV Powertrain Control Module 2 X3*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | — | Not Occupied | — | — |
| 2 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | — |
| 3 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | — |
| 4 | 0.5 | D-BU | 2500 | High Speed GMLAN Serial Data (+) 1 | II | — |
| 5 | 0.5 | WH | 2501 | High Speed GMLAN Serial Data (-) 1 | II | — |
| 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.5 | BK | 1250 | Ground | I | — |
| 8 | — | — | — | Not Occupied | — | — |
| 9 | 0.35 | VT/YE | 5985 | Accessory Wakeup Serial Data | I | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 10 | 0.5 | RD/BN | 2940 | Battery Positive Voltage | I | — |

## K114B Hybrid/EV Powertrain Control Module 2 X4



### Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 33104389

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way F 0.64 OCS Series (GY)

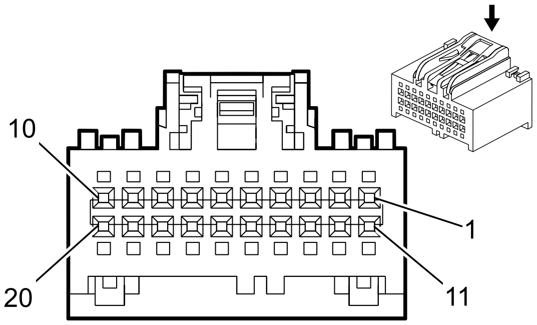
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K114B Hybrid/EV Powertrain Control Module 2 X4*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | BN/L-GN | 3959 | High Voltage Battery 1 (+) Relay Control | I | — |
| 2 | 0.35 | VT/GY | 3961 | High Voltage Battery (-) Relay Control | I | — |
| 3 | 0.35 | GY | 5138 | Precharge Relay | I | — |
| 4 - 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.35 | BK | 150 | Ground | I | — |
| 8 - 12 | — | — | — | Not Occupied | — | — |

# K114B Hybrid/EV Powertrain Control Module 2 X5



## Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 33125545

Service Connector: Service by Harness - See Part Catalog

Description: 20-Way F 64 Series, Sealed (BK)

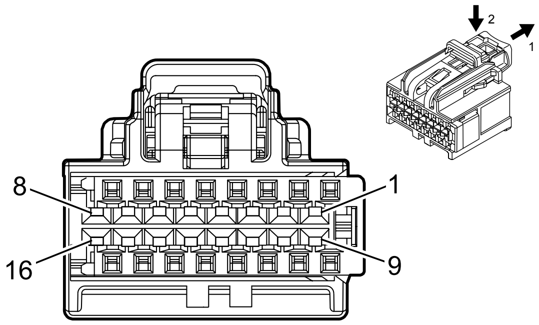
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *K114B Hybrid/EV Powertrain Control Module 2 X5*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.5 | VT | 5087 | High Voltage Interlock Loop Signal 1 | I | — |
| 2 - 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.35 | D-BU/YE | 2962 | High Voltage Battery Current Sensor Course Signal | I | — |
| 5 - 10 | — | — | — | Not Occupied | — | — |
| 11 | 0.5 | BK/BN | 5088 | High Voltage Interlock Loop Low Reference 1 | I | — |
| 12 | — | — | — | Not Occupied | — | — |
| 13 | 0.35 | VT/RD | 2965 | High Voltage Battery Current Sensor Voltage Reference | I | — |
| 14 | 0.35 | BK/GY | 2963 | High Voltage Battery Current Sensor Low Reference | I | — |
| 15 - 20 | — | — | — | Not Occupied | — | — |

## K114B Hybrid/EV Powertrain Control Module 2 X6



### Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 33104226

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way F 0.64 OCS Series (BN)

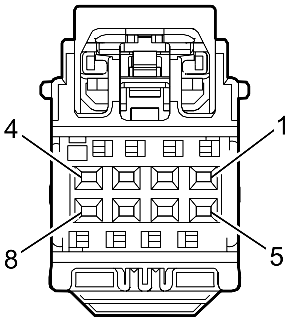
### *Terminal Part Information*

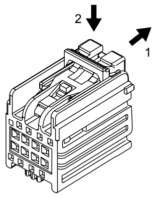
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K114B Hybrid/EV Powertrain Control Module 2 X6*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | — | — | — | Not Occupied | — | — |
| 2 | 0.5 | VT | 3546 | High Voltage Battery Positive Monitor Signal | I | — |
| 3 - 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.5 | GY/VT | 3548 | High Voltage Battery Negative Monitor Signal | I | — |
| 8 - 16 | — | — | — | Not Occupied | — | — |

# K114B Hybrid/EV Powertrain Control Module 2 X7





## Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 33183559

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F YESC Kaizen Series (GY)

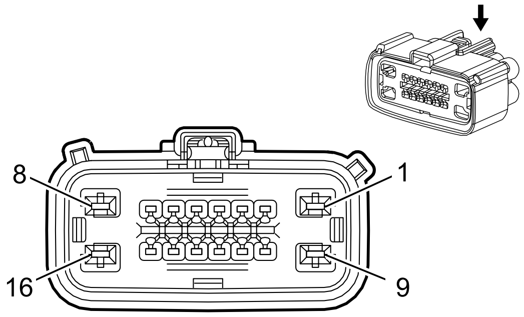
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *K114B Hybrid/EV Powertrain Control Module 2 X7*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | WH | 1511 | Battery Cell Sensing Serial Data (-) 1 | I | — |
| 2 - 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.35 | D-BU | 1626 | Battery Cell Sensing Serial Data (-) 2 | I | — |
| 5 | 0.35 | WH/BN | 1510 | Battery Cell Sensing Serial Data (+) 1 | I | — |
| 6 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.35 | WH/D-BU | 1625 | Battery Cell Sensing Serial Data (+) 2 | I | — |

# K133 Trailer Brake Power Control Module



## Connector Part Information

Harness Type: Chassis

OEM Connector: 33181359

Service Connector: 13597503

Description: 16-Way F 1.5, 2.8 Series, Sealed (D-GY)

## *Terminal Part Information*

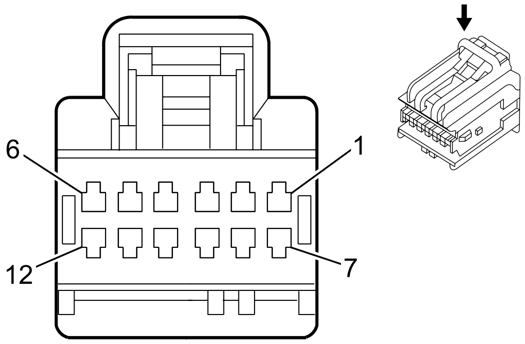
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13505803 | J-35616-35 (VT) | J-38125-12A | 1326030-8 | Lear 17 | 4 | D |
| II | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |

## *K133 Trailer Brake Power Control Module*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 2.5 | RD/L-GN | 242 | Battery Positive Voltage | I | — |
| 2 | 0.5 | WH/BK | 2223 | Trailer Brake Control Signal | II | — |
| 3 - 4 | — | — | — | Not Occupied | — | — |
| 5 | 0.5 | YE/BK | 2224 | Trailer Brake Enable Signal | II | — |
| 6 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 2.5 | D-BU | 47 | Trailer Auxiliary Control | I | — |
| 9 | 2.5 | BK | 1750 | Ground | I | — |
| 10 - 11 | — | — | — | Not Occupied | — | — |
| 12 | 0.5 | L-GN/VT | 4114 | Local Interconnect Network Serial Data Bus 14 | II | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 13 - 16 | — | — | — | Not Occupied | — | — |

## K182 Parking Assist Control Module X1



### Connector Part Information

Harness Type: Body

OEM Connector: 13551678

Service Connector: 89047364

Description: 12-Way F 0.64 Series (BK)

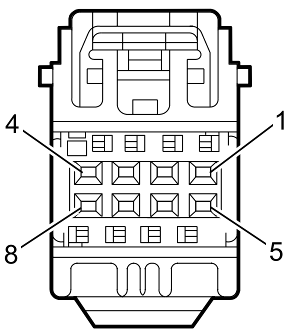
### *Terminal Part Information*

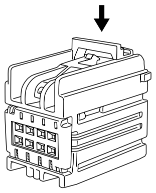
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575845 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |
| II | 13579945 | J-35616-64B (LT BU) | J-38125-215A | Not Available | Not Available | Not Available | Not Available |

### *K182 Parking Assist Control Module X1*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.75 | RD/L-GN | 3140 | Battery Positive Voltage | II | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.35 | L-GN/BN | 5852 | Rear Park Assist LED Disable Signal | I | — |
| 4 | 0.35 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |
| 5 - 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.75 | BK/WH | 2751 | Signal Ground | II | — |
| 8 | 0.35 | GY/L-GN | 2555 | Rear Park Assist Disable Signal | I | — |
| 9 - 12 | — | — | — | Not Occupied | — | — |

## K182 Parking Assist Control Module X2





### Connector Part Information

Harness Type: Body

OEM Connector: 13551679

Service Connector: 19115653

Description: 8-Way F YESC Kaizen Series (L-GY)

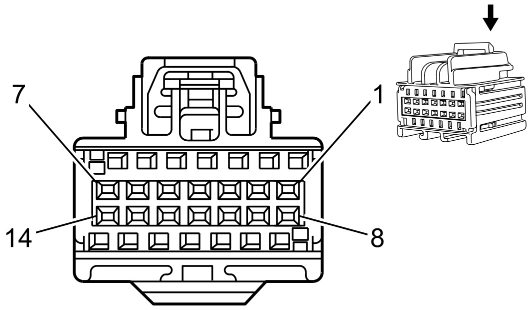
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *K182 Parking Assist Control Module X2*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | YE | 2375 | Left Rear Corner Object Sensor Signal | I | — |
| 2 | — | — | — | Not Occupied | — | — |
| 3 | 0.35 | YE/D-BU | 2376 | Left Rear Middle Object Sensor Signal | I | — |
| 4 | 0.35 | BN/WH | 2374 | Object Sensor Control | I | — |
| 5 | 0.35 | YE/VT | 2378 | Right Rear Corner Object Sensor Signal | I | — |
| 6 | — | — | — | Not Occupied | — | — |
| 7 | 0.35 | YE/WH | 2377 | Right Rear Middle Object Sensor Signal | I | — |
| 8 | 0.35 | BK/GY | 2379 | Object Sensor Low Reference | I | — |

## K182 Parking Assist Control Module X3



### Connector Part Information

Harness Type: Body

OEM Connector: 15491263

Service Connector: 15127038

Description: 14-Way F 0.64 Kaizen Series (BU)

### *Terminal Part Information*

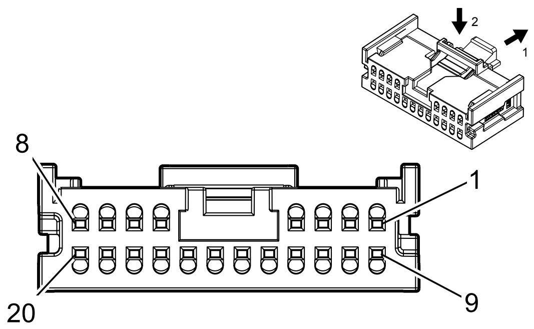
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575845 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |
| II | 19300440 | J-35616-64B (LT BU) | J-38125-215A | SAIT-A03T-M064 | Yazaki 14 | P | P |

### *K182 Parking Assist Control Module X3*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | YE/VT | 5213 | Front Parking Left/Right/Mid Sensor | I | — |
| 2 - 3 | — | — | — | Not Occupied | — | — |
| 4 | 0.35 | VT/WH | 5215 | Front Parking Left Corner Sensor | II | — |
| 5 | 0.35 | YE/GY | 5216 | Front Parking Left Mid Sensor | II | — |
| 6 - 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.35 | BK/D-BU | 5214 | Front Parking Sensor Low Reference | II | — |
| 9 - 10 | — | — | — | Not Occupied | — | — |
| 11 | 0.35 | WH/GY | 5217 | Front Parking Right Corner Sensor | II | — |
| 12 | 0.35 | VT/GY | 5218 | Front Parking Right Mid Sensor | II | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| 13 - 14 | — | — | — | Not Occupied | — | — |

# K188 Human Machine Interface Control Module Bypass Module X1



## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 33167777

Service Connector: 13596105

Description: 20-Way F Mini 50 Series (BK)

## Terminal Part Information

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13579954 | No Tool Required | J-38125-553 | Not Available | Not Available | Not Available | Not Available |
| II | 19330186 | No Tool Required | J-38125-11A | Not Available | Not Available | Not Available | Not Available |

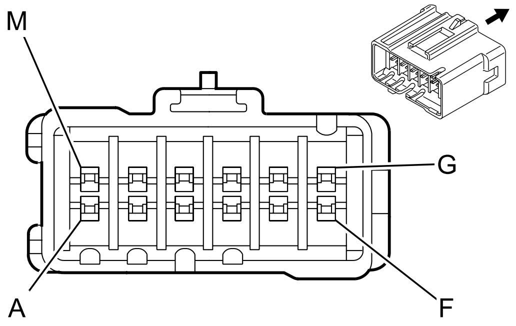
## K188 Human Machine Interface Control Module Bypass Module X1

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| 1 | 0.35 | RD/GY | 2840 | Battery Positive Voltage | I | — |
| 2 | 0.35 | GY/VT | 755 | RAP Relay Coil Control | I | — |
| 3 | 0.35 | GN/WH | 7527 | Local Interconnect Network Serial Data Bus 5 | I | — |
| 4 | — | — | — | Not Occupied | — | — |
| 5 | 0.35 | BK | 2550 | Ground | I | — |
| 6 | 0.35 | GY/YE | 6972 | Camera Signal 2 + | I | — |
| 7 | — | — | — | Not Occupied | — | — |
| 8 | 0.35 | GY/YE | 6972 | Camera Signal 2 + | I | — |

|  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|
| 9 | 0.35 | GN/WH | 24 | Backup Lamp Control | I | — |
| 10 - 17 | — | — | — | Not Occupied | — | — |
| 18 | 0.35 | WH/BU | 6973 | Camera Signal 2 | I | — |
| 19 | 0.35 | BARE | 6974 | Camera Low Reference | II | — |
| 20 | 0.35 | WH/BU | 6973 | Camera Signal 2 | I | — |

## Splice Pack Connector End Views

### JX200 Splice Pack



### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 15305291

Service Connector: 15305291

Description: 12-Way F 280 Metri-Pack Series (BK)

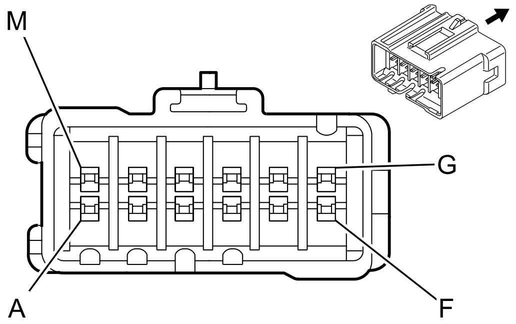
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575721 | J-35616-4A (PU) | J-38125-553 | 12110844 | Delphi 4 | E | 4 |
| II | 13575721 | J-35616-4A (PU) | J-38125-553 | 12110844 | Delphi 4 | E | A |

### *JX200 Splice Pack*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | II | — |
| B - D | — | — | — | Not Occupied | — | — |
| E | 0.35 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |
| F - H | — | — | — | Not Occupied | — | — |
| J | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | II | — |
| K | 0.35 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |
| L | — | — | — | Not Occupied | — | — |
| M | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | II | — |

## JX300 Splice Pack



### Connector Part Information

Harness Type: Body

OEM Connector: 15305291

Service Connector: 15305291

Description: 12-Way F 280 Metri-Pack Series (BK)

### *Terminal Part Information*

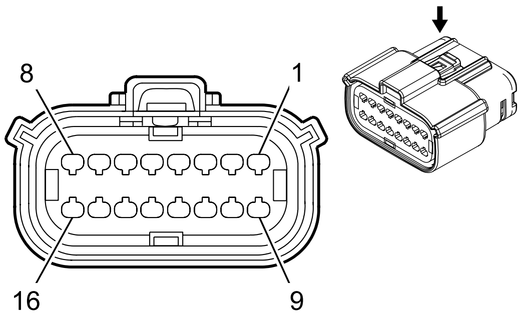
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575721 | J-35616-4A (PU) | J-38125-553 | 12110844 | Delphi 4 | E | 4 |
| II | 13575721 | J-35616-4A (PU) | J-38125-553 | 12110844 | Delphi 4 | E | A |

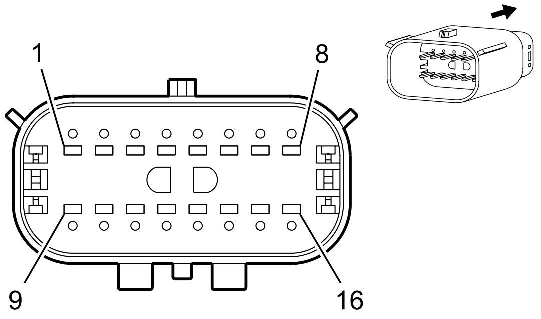
### *JX300 Splice Pack*

| Pin | Size | Color | Circuit | Function | Terminal Type ID | Option |
|---|---|---|---|---|---|---|
| A | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | II | — |
| B - C | — | — | — | Not Occupied | — | — |
| D | 0.35 | L-GN | 5060 | Low Speed GMLAN Serial Data | I | — |
| E | — | — | — | Not Occupied | — | — |
| F | 0.35<br>0.5 | L-GN<br>L-GN | 5060<br>5060 | Low Speed GMLAN Serial Data<br>Low Speed GMLAN Serial Data | I<br>II | AL0<br>HP5 |
| G - H | — | — | — | Not Occupied | — | — |
| J | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | II | — |
| K | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | II | — |

| | | | | | | |
|---|---|---|---|---|---|---|
| L | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | II | — |
| M | 0.5 | L-GN | 5060 | Low Speed GMLAN Serial Data | II | — |

## X100 Forward Lamp Harness to Front Bumper Harness (X88+UD5)





### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33120329

Service Connector: 19354087

Description: 16-Way F 150 MX Series, Sealed (BK)

### Connector Part Information

Harness Type: Front Bumper

OEM Connector: 15533030

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

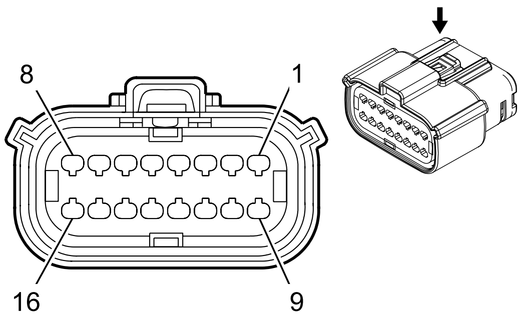
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

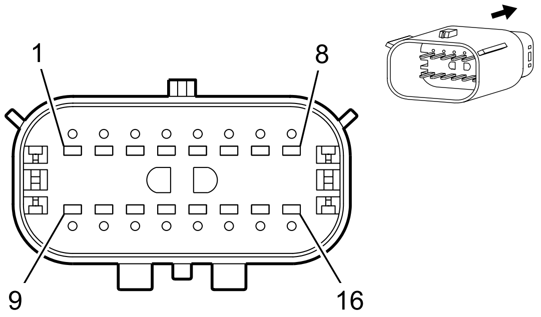
### *X100 Forward Lamp Harness to Front Bumper Harness (X88+UD5)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | BK | 150 | I | — | Ground | 1 | 0.5 | BK | 150 | II | — |
| 2 | 1 | BK | 250 | I | — | Ground | 2 | 0.5 | BK | 250 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | BN/VT | 2234 | I | — | Front Fog Lamp Control | 3 | 0.5 | BN/VT | 2234 | II | — |
| 4 | 0.5 | YE/VT | 5213 | I | — | Front Parking Left/Right/Mid Sensor | 4 | 0.5 | YE/L-GN | 5213 | II | — |
| 5 | 0.5 | VT/WH | 5215 | I | — | Front Parking Left Corner Sensor | 5 | 0.5 | VT/WH | 5215 | II | — |
| 6 | 0.5 | YE/GY | 5216 | I | — | Front Parking Left Mid Sensor | 6 | 0.5 | YE/GY | 5216 | II | — |
| 7 | 0.5 | WH/GY | 5217 | I | — | Front Parking Right Corner Sensor | 7 | 0.5 | WH/GY | 5217 | II | — |
| 8 - 9 | — | — | — | — | — | Not Occupied | 8 - 9 | — | — | — | — | — |
| 10 | 0.5 | VT/GY | 5218 | I | — | Front Parking Right Mid Sensor | 10 | 0.5 | VT/GY | 5218 | II | — |
| 11 | 0.5 | BK/D-BU | 5214 | I | — | Front Parking Sensor Low Reference | 11 | 0.5 | BK/D-BU | 5214 | II | — |
| 12 - 16 | — | — | — | — | — | Not Occupied | 12 - 16 | — | — | — | — | — |

## X100 Forward Lamp Harness to Front Bumper Harness (X88-UD5)





### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33122174

Service Connector: 19354087

Description: 16-Way F 150 MX Series, Sealed (BK)

### Connector Part Information

Harness Type: Front Bumper

OEM Connector: 33101516

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

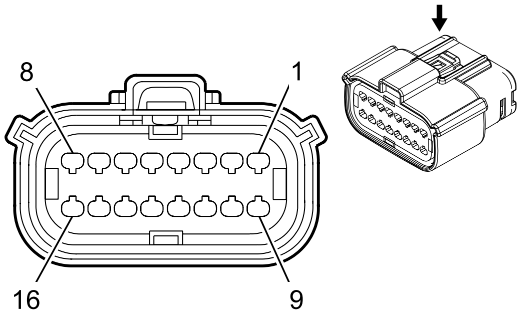
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

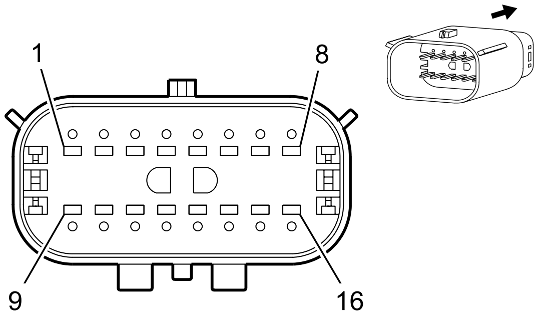
### *X100 Forward Lamp Harness to Front Bumper Harness (X88-UD5)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | BK | 150 | I | — | Ground | 1 | 0.5 | BK | 150 | II | — |
| 2 | 1 | BK | 250 | I | — | Ground | 2 | 0.5 | BK | 250 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | BN/VT | 2234 | I | — | Front Fog Lamp Control | 3 | 0.5 | BN/VT | 2234 | II | — |
| 4 - 16 | — | — | — | — | — | Not Occupied | 4 - 16 | — | — | — | — | — |

## X100 Forward Lamp Harness to Front Bumper Harness (Z88+UD5)





### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33120329

Service Connector: 19354087

Description: 16-Way F 150 MX Series, Sealed (BK)

### Connector Part Information

Harness Type: Front Bumper

OEM Connector: 15533030

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

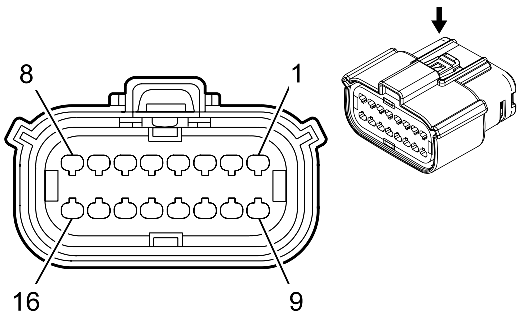
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

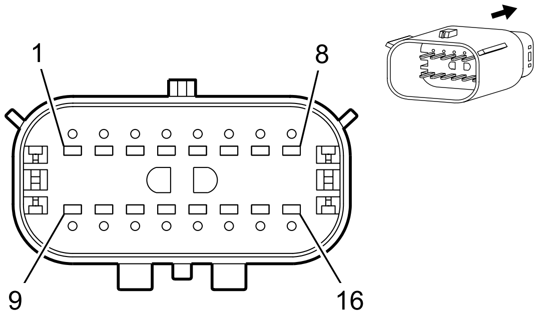
### *X100 Forward Lamp Harness to Front Bumper Harness (Z88+UD5)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | BK | 150 | I | — | Ground | 1 | 0.5 | BK | 150 | II | — |
| 2 | 1 | BK | 250 | I | — | Ground | 2 | 0.5 | BK | 250 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | BN/VT | 2234 | I | — | Front Fog Lamp Control | 3 | 0.5 | BN/VT | 2234 | II | — |
| 4 | 0.5 | YE/VT | 5213 | I | — | Front Parking Left/Right/Mid Sensor | 4 | 0.5 | YE/L-GN | 5213 | II | — |
| 5 | 0.5 | VT/WH | 5215 | I | — | Front Parking Left Corner Sensor | 5 | 0.5 | VT/WH | 5215 | II | — |
| 6 | 0.5 | YE/GY | 5216 | I | — | Front Parking Left Mid Sensor | 6 | 0.5 | YE/GY | 5216 | II | — |
| 7 | 0.5 | WH/GY | 5217 | I | — | Front Parking Right Corner Sensor | 7 | 0.5 | WH/GY | 5217 | II | — |
| 8 - 9 | — | — | — | — | — | Not Occupied | 8 - 9 | — | — | — | — | — |
| 10 | 0.5 | VT/GY | 5218 | I | — | Front Parking Right Mid Sensor | 10 | 0.5 | VT/GY | 5218 | II | — |
| 11 | 0.5 | BK/D-BU | 5214 | I | — | Front Parking Sensor Low Reference | 11 | 0.5 | BK/D-BU | 5214 | II | — |
| 12 - 16 | — | — | — | — | — | Not Occupied | 12 - 16 | — | — | — | — | — |

## X100 Forward Lamp Harness to Front Bumper Harness (Z88-UD5)





### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33122174

Service Connector: 19354087

Description: 16-Way F 150 MX Series, Sealed (BK)

### Connector Part Information

Harness Type: Front Bumper

OEM Connector: 33101516

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

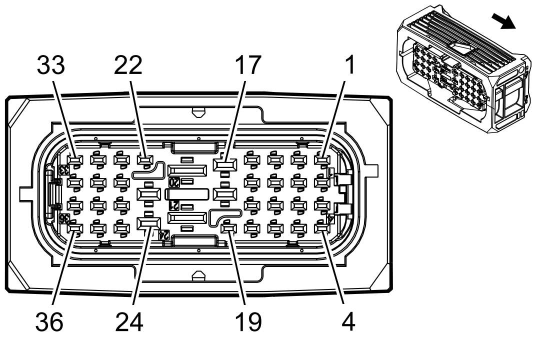
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

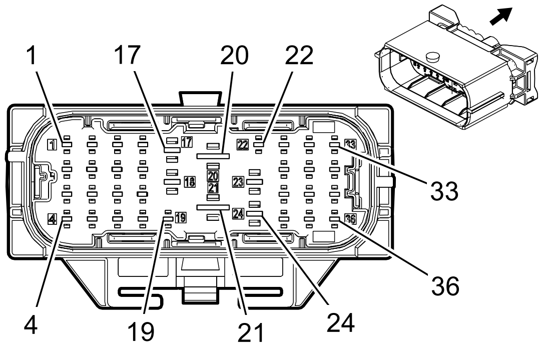
### *X100 Forward Lamp Harness to Front Bumper Harness (Z88-UD5)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | BK | 150 | I | — | Ground | 1 | 0.5 | BK | 150 | II | — |
| 2 | 1 | BK | 250 | I | — | Ground | 2 | 0.5 | BK | 250 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | BN/VT | 2234 | I | — | Front Fog Lamp Control | 3 | 0.5 | BN/VT | 2234 | II | — |
| 4 - 16 | — | — | — | — | — | Not Occupied | 4 - 16 | — | — | — | — | — |

# X101 Engine Harness to Engine Chassis Harness (L5P)





## Connector Part Information

Harness Type: Engine

OEM Connector: 13929980

Service Connector: 19333092

Description: 36-Way F 1.5, 2.8 CTS, 6.3 MCP Series (BK)

## Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 13930004

Service Connector: 19330685

Description: 36-Way M 1.5, 2.8, 5.8 Series, Sealed

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13582180 | J-35616-14 (GN) | J-38125-560 | 1241374-1 | Lear 17 | E | 2 |
| II | 19329757 | J-35616-14 (GN) | J-38125-215A | Not Available | Not Available | Not Available | Not Available |
| III | 19333088 | J-35616-35 (VT) | J-38125-12A | Not Available | Not Available | Not Available | Not Available |
| IV | 19354091 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| V | 13575380 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| VI | 13580819 | J-35616-5 (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| VII | 19353104 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

## *X101 Engine Harness to Engine Chassis Harness (L5P)*

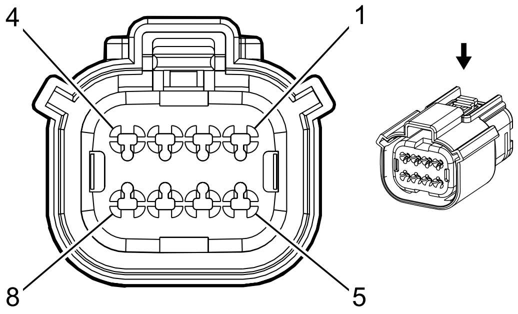
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

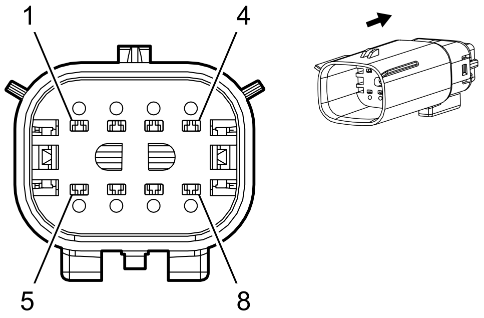
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | D-BU/BN | 4498 | II | — | High Speed GMLAN Serial Data (+) 7 | 1 | 0.5 | BU/BN | 4498 | VII | L5P |
| 2 | 0.5 | WH | 4499 | II | — | High Speed GMLAN Serial Data (-) 7 | 2 | 0.5 | WH | 4499 | VII | L5P |
| 3 | 0.5 | D-BU | 2500 | I | — | High Speed GMLAN Serial Data (+) 1 | 3 | 0.5 | BU | 2500 | VII | L5P |
| 4 | 0.5 | WH | 2501 | I | — | High Speed GMLAN Serial Data (-) 1 | 4 | 0.5 | WH | 2501 | VII | L5P |
| 5 | 0.5 | BK/BN | 6782 | II | — | Exhaust Gas Temperature Sensor 1 Low Reference | 5 | 0.5 | BK/BN | 6782 | VII | L5P |
| 6 | 0.5 | D-BU/WH | 5277 | II | — | Exhaust Gas Temperature Sensor 1 | 6 | 0.5 | BU/WH | 5277 | VII | L5P |
| 7 | 0.5 | BK/D-BU | 6783 | II | — | Exhaust Gas Temperature Sensor 2 Low Reference | 7 | 0.5 | BK/BU | 6783 | VII | L5P |
| 8 | 0.5 | D-BU/L-GN | 5377 | II | — | Exhaust Gas Temperature Sensor 2 | 8 | 0.5 | BU/GN | 5377 | VII | L5P |
| 9 | 0.5 | BK/D-BU | 6274 | II | — | Exhaust Gas Recirculation Temperature Sensor Low Reference | 9 | 0.5 | BK/BU | 6274 | VII | L5P |
| 10 | 0.5 | WH/BN | 3237 | II | — | Exhaust Gas Recirculation Temperature Sensor Signal | 10 | 0.5 | WH/BN | 3237 | VII | L5P |
| 11 | 0.5 | BK/YE | 6275 | II | — | Exhaust Gas Recirculation Temperature Sensor 2 | 11 | 0.5 | BK/YE | 6275 | VII | L5P |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Low Reference | | | | | | |
| 12 | 0.5 | YE/L-GN | 3236 | II | — | Exhaust Gas Recirculation Temperature Sensor 2 Signal | 12 | 0.5 | YE/GN | 3236 | VII | L5P |
| 13 | 0.5 | YE/BK | 3682 | II | — | Charge Air Cooler Inlet Temperature Sensor Low Reference | 13 | 0.5 | YE/BK | 3682 | VII | L5P |
| 14 | 0.5 | L-GN | 3683 | II | — | Charge Air Cooler Inlet Temperature Sensor Signal | 14 | 0.5 | GN | 3683 | VII | L5P |
| 15 | 0.5 | BN/BK | 2929 | II | — | Fuel Metering Valve Low Control | 15 | 0.5 | BN/BK | 2929 | VII | L5P |
| 16 | 0.5 | YE | 2928 | II | — | Fuel Metering Valve High Control | 16 | 0.5 | YE | 2928 | VII | L5P |
| 17 | 0.5 | VT/YE | 5985 | IV | — | Accessory Wakeup Serial Data | 17 | 0.5 | VT/YE | 443 | VI | L5P |
| 18 | 0.5 | VT/BK | 2139 | IV | — | Run/Crank Ignition 1 Voltage | 18 | 0.5 | VT/BK | 2139 | VI | L5P |
| 19 - 21 | — | — | — | — | — | Not Occupied | 19 - 21 | — | — | — | — | — |
| 22 | 0.5 | VT/D-BU | 3674 | I | — | NOx Sensor 1 Control | 22 | 0.5 | VT/BU | 3674 | V | L5P |
| 23 | 0.5 | GY | 23 | III | — | Generator Field Duty Cycle Signal | 23 | 0.5 | GY | 23 | VI | L5P |
| 24 | 0.75 | BN | 25 | III | — | Charge Indicator Control | 24 | 0.5 | BN | 25 | VI | L5P |

|  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.5 | BN/RD | 7445 | II | — | Fuel Line Pressure Sensor 5V Reference | 25 | 0.5 | BN/RD | 7445 | VII | L5P |
| 26 | 0.5 | BK/YE | 7447 | II | — | Fuel Line Pressure Sensor Low Reference | 26 | 0.5 | BK/YE | 7447 | VII | L5P |
| 27 | 0.5 | D-BU/WH | 7446 | II | — | Fuel Line Pressure Sensor Signal | 27 | 0.5 | BU/WH | 7446 | VII | L5P |
| 28 | — | — | — | — | — | Crankshaft Position Sensor Replicated Signal | 28 | 0.5 | VT/BU | 6091 | VII | L5P |
| 29 | — | — | — | — | — | Not Occupied | 29 | — | — | — | — | — |
| 30 | 0.5 | D-BU/L-GN | 7071 | II | — | Heater Fuel Control | 30 | 0.5 | BU/GN | 7071 | VII | L5P |
| 31 | 0.5 | VT/BN | 2927 | II | — | Hydrocarbon Injector Low Control | 31 | 0.5 | VT/BN | 2927 | VII | L5P |
| 32 | 0.5 | BN/D-BU | 2926 | II | — | Hydrocarbon Injector High Control | 32 | 0.5 | BN/BU | 2926 | VII | L5P |
| 33 | 0.5 | D-BU/BN | 4498 | II | — | High Speed GMLAN Serial Data (+) 7 | 33 | 0.5 | BU/BN | 4498 | VII | L5P |
| 34 | 0.5 | WH | 4499 | II | — | High Speed GMLAN Serial Data (-) 7 | 34 | 0.5 | WH | 4499 | VII | L5P |
| 35 | 0.5 | D-BU | 2500 | I | — | High Speed GMLAN Serial Data (+) 1 | 35 | 0.5 | BU | 2500 | VII | L5P |
| 36 | 0.5 | WH | 2501 | I | — | High Speed GMLAN Serial Data (-) 1 | 36 | 0.5 | WH | 2501 | VII | L5P |

## X105 Engine Harness to Forward Lamp Harness (L8B)





### Connector Part Information

Harness Type: Engine

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F

### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 15456955

Service Connector: 19300474

Description: 8-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

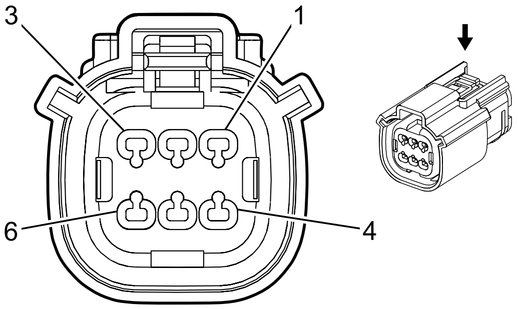
### *X105 Engine Harness to Forward Lamp Harness (L8B)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | BN/YE | 473 | I | — | High Speed Cooling Fan Relay Control | 1 | 0.5 | BN/YE | 473 | II | — |
| 2 | 0.5 | BK/D-BU | 61 | I | — | Outside Ambient Temperature Sensor Low Reference | 2 | 0.5 | BK/D-BU | 61 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Outside Ambient Temperature Sensor Low Reference | | | | | | |
| 2 | 0.5 | BK/D-BU | 61 | I | — | Outside Ambient Temperature Sensor Low Reference<br>Outside Ambient Temperature Sensor Low Reference | 2 | 0.5 | BK/D-BU | 61 | II | — |
| 3 | 0.5 | D-BU/GY | 636 | I | — | Outside Ambient Air Temperature Sensor Signal<br>Outside Ambient Air Temperature Sensor Signal | 3 | 0.5 | D-BU/GY | 636 | II | — |
| 3 | 0.5 | D-BU/GY | 636 | I | — | Outside Ambient Air Temperature Sensor Signal<br>Outside Ambient Air Temperature Sensor Signal | 3 | 0.5 | D-BU/GY | 636 | II | — |
| 4 | 0.5 | GY/VT | 3873 | I | — | Powertrain Electronics Cooling Loop (PECL) Temperature Sensor Signal | 4 | 0.5 | GY/VT | 3873 | II | — |
| 5 | 0.5 | VT/D-BU | 5290 | I | — | Powertrain Main Relay Fused Supply 1 | 5 | 0.5 | VT/D-BU | 5290 | II | — |
| 6 | 0.5 | L-GN/VT | 4621 | I | — | Local Interconnect Network Serial Data Bus 21 | 6 | 0.5 | L-GN/VT | 4621 | II | — |
| 7 | 0.5 | VT/D-BU | 3790 | I | — | Electric Coolant Motor Feedback Signal | 7 | 0.5 | VT/D-BU | 3790 | II | — |
| | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 8 | 0.5 | BK/GY | 3872 | I | — | Powertrain Electronics Cooling Loop (PECL) Temperature Sensor Low Reference | 8 | 0.5 | BK/GY | 3872 | II | — |

## X105 Engine Harness to Forward Lamp Harness (LV3/LV1)



—

### Connector Part Information

- Harness Type: Engine
- OEM Connector: 13609714
- Service Connector: 13585853
- Description: 6-Way F 150 MX Series, Sealed (BK)

### Connector Part Information

- Harness Type: Forward Lamp
- OEM Connector: —
- Service Connector: Service by Harness - See Part Catalog
- Description: 6-Way M

### *Terminal Part Information*

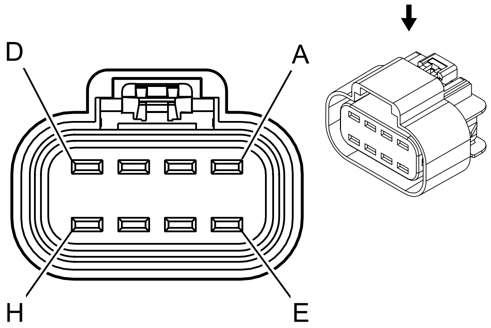
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X105 Engine Harness to Forward Lamp Harness (LV3/LV1)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | BN/YE | 473 | I | — | High Speed Cooling Fan Relay Control | 1 | 0.5 | BN/YE | 473 | II | — |
| 2 | 0.5 | BK/D-BU | 61 | I | — | Outside Ambient Temperature Sensor Low Reference | 2 | 0.5 | BK/D-BU | 61 | II | — |
| 3 | 0.5 | D-BU/GY | 636 | I | — | Outside Ambient Air Temperature Sensor Signal | 3 | 0.5 | D-BU/GY | 636 | II | — |
| 4 | — | — | — | — | — | Not Occupied | 4 | — | — | — | — | — |
| 5 | 0.75 | VT/D-BU | 5290 | I | — | Powertrain Main Relay Fused Supply 1 | 5 | 0.75 | VT/D-BU | 5290 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 0.5 | L-GN/VT | 4621 | I | — | Local Interconnect Network Serial Data Bus 21 | 6 | 0.5 | L-GN/VT | 4621 | II | — |

## X110 Forward Lamp Harness to Front Bumper Harness (Heavy Duty)



—

### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 15326654

Service Connector: 88986254

Description: 8-Way F 280 GT Series, Sealed (BK)

### Connector Part Information

Harness Type: Front Bumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way M

### *Terminal Part Information*

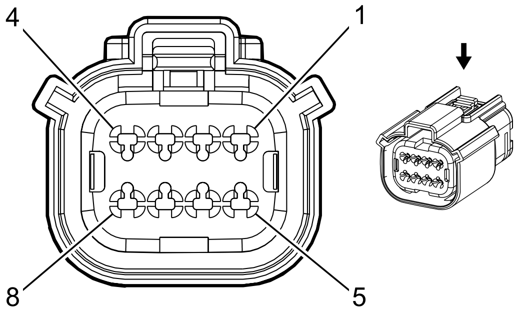
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X110 Forward Lamp Harness to Front Bumper Harness (Heavy Duty)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1.5 | BK | 150 | I | — | Ground | A | 1.5 | BK | 150 | II | — |
| B | 0.75 | YE | 712 | I | — | Left Headlamp Low Beam Control | B | 0.75 | YE | 712 | II | — |
| C | 0.5 | WH | 711 | I | — | Left Headlamp High Beam Control | C | 0.5 | WH | 711 | II | — |
| D | — | — | — | — | — | Not Occupied | D | — | — | — | — | — |
| E | 0.5 | VT/GY | 709 | I | — | Left Park Lamp Control | E | 0.5 | VT/GY | 709 | II | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| F | 0.75 | D-BU/WH | 1314 | I | — | Left Front Turn Signal Lamp Control | F | 0.75 | D-BU/WH | 1314 | II | — |
| G | 0.75 | GY/D-BU | 7538 | I | — | Left Front DRL Control | G | 0.75 | GY/D-BU | 7538 | II | — |
| H | 0.5 | VT/GY | 709 | I | — | Left Park Lamp Control | H | 0.5 | VT/GY | 709 | II | — |

## X110 Forward Lamp Harness to Front Bumper Harness (Light Duty)



—

### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13654393

Service Connector: 13577527

Description: 8-Way F 1.5 Series, Sealed (BK)

### Connector Part Information

Harness Type: Front Bumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way M

### *Terminal Part Information*

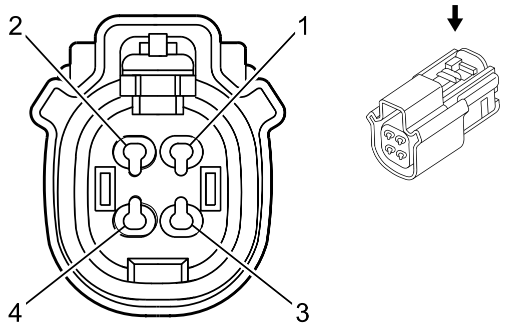
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

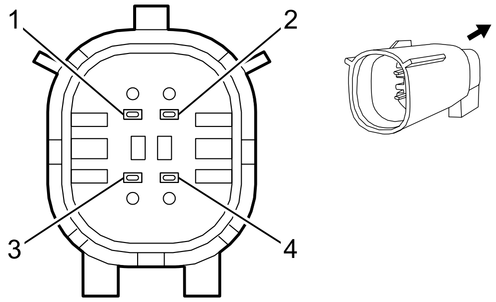
### *X110 Forward Lamp Harness to Front Bumper Harness (Light Duty)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.5 | BK | 150 | I | — | Ground | 1 | 1.5 | BK | 150 | II | — |
| 2 | 0.75 | YE | 712 | I | — | Left Headlamp Low Beam Control | 2 | 0.75 | YE | 712 | II | — |
| 3 | 0.5 | WH | 711 | I | — | Left Headlamp High Beam Control | 3 | 0.5 | WH | 711 | II | — |
| 4 | 0.5 | VT/GY | 709 | I | — | Left Park Lamp Control | 4 | 0.5 | VT/GY | 709 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.5 | D-BU/VT | 3204 | I | — | Left Headlamp Bulb Outage Signal | 5 | 0.5 | D-BU/VT | 3204 | II | — |
| 6 | 0.5 | VT/GY | 3139 | I | — | Run/Crank Ignition 1 Voltage | 6 | 0.5 | VT/GY | 3139 | II | — |
| 7 | 0.75 | D-BU/WH | 1314 | I | — | Left Front Turn Signal Lamp Control | 7 | 0.75 | D-BU/WH | 1314 | II | — |
| 8 | 0.75 | GY/D-BU | 7538 | I | — | Left Front DRL Control | 8 | 0.75 | GY/D-BU | 7538 | II | — |

## X111 Front Axle Harness to Engine Harness





### Connector Part Information

Harness Type: Front Axle Jumper

OEM Connector: 13872556

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 150 MX Series, Sealed (BK)

### Connector Part Information

Harness Type: Engine

OEM Connector: 13586625

Service Connector: 19329823

Description: 4-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

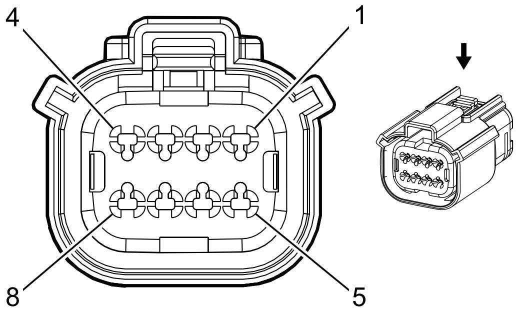
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

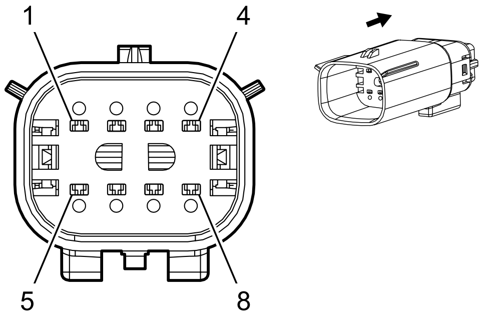
### *X111 Front Axle Harness to Engine Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | YE/WH | 1695 | I | — | Four Wheel Drive Wheel Lock Indicator Control | 1 | 0.5 | YE/WH | 1695 | II | — |
| 2 | 0.5 | GY/BK | 1570 | I | — | Front Axle Actuator Control | 2 | 0.5 | GY/BK | 1570 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | VT/BK | 2139 | I | — | Run/Crank Ignition 1 Voltage<br>Run/Crank Ignition 1 Voltage | 3 | 0.5 | VT/BK | 2139 | II | — |
| 4 | 0.5 | BK | 550 | I | — | Ground | 4 | 1 | BK | 550 | II | — |

## X112 Engine Chassis Harness to Engine Jumper Harness (L5P)





### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 33472-0806

Service Connector: 13577527

Description: 8-Way F 150 MX Series, Sealed (BK)

### Connector Part Information

Harness Type: Engine

OEM Connector: 33482-0801

Service Connector: 19300474

Description: 8-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

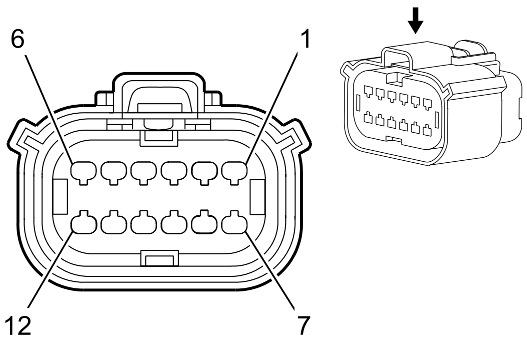
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

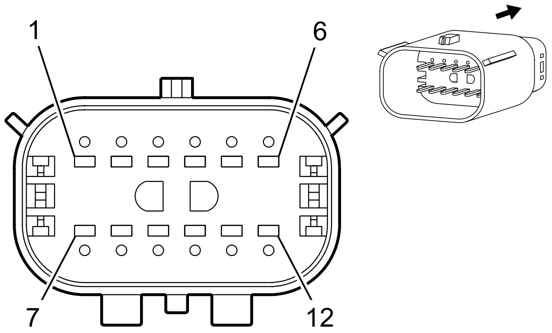
### *X112 Engine Chassis Harness to Engine Jumper Harness (L5P)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/BU | 6270 | I | L5P | Crankshaft 60X Sensor 5V Reference | 1 | 0.5 | VT/BU | 6270 | II | L5P |
| 2 | 0.5 | BK/VT | 6272 | I | L5P | Crankshaft 60X Sensor Low Reference | 2 | 0.5 | BK/VT | 6272 | II | L5P |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | GN | 6271 | I | L5P | Crankshaft 60X Sensor Signal | 3 | 0.5 | GN | 6271 | II | L5P |
| 4 | 0.5 | BN/RD | 2917 | I | L5P | Fuel Rail Pressure Sensor 5V Reference | 4 | 0.5 | BN/RD | 2917 | II | L5P |
| 5 | 0.5 | BK/GN | 2919 | I | L5P | Fuel Rail Pressure Sensor Low Reference | 5 | 0.5 | BK/GN | 2919 | II | L5P |
| 6 | 0.5 | BU/WH | 2918 | I | L5P | Fuel Rail Pressure Sensor Signal | 6 | 0.5 | BU/WH | 2918 | II | L5P |
| 7 | 0.5 | BN/YE | 2161 | I | L5P | Fuel Rail Pressure Sensor 2 Signal | 7 | 0.5 | BN/YE | 2161 | II | L5P |
| 8 | — | — | — | — | — | Not Occupied | 8 | — | — | — | — | — |

## X113 Engine Chassis Harness to Engine Jumper Harness (L5P)





### Connector Part Information

Harness Type: Engine Chassis

OEM Connector: 33472-1206

Service Connector: 13503528

Description: 12-Way F 150 MX Series, Sealed (BK)

### Connector Part Information

Harness Type: Engine

OEM Connector: 33482-1201

Service Connector: 13503540

Description: 12-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

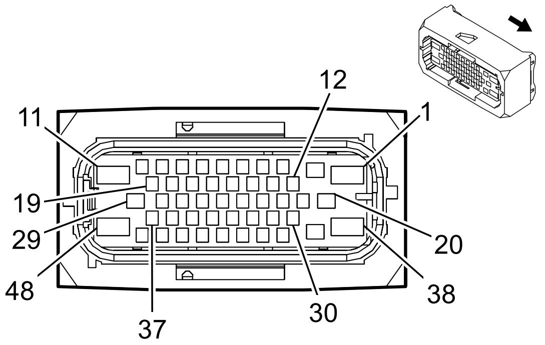
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13578813 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | 13580014 | J-35616-3 (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |

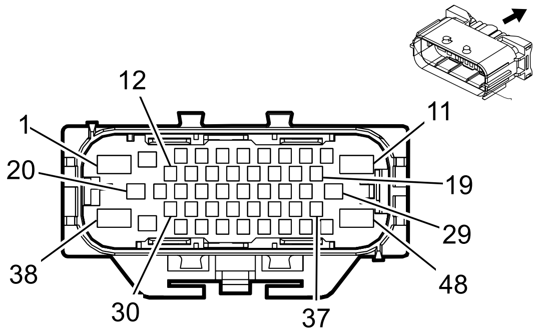
### *X113 Engine Chassis Harness to Engine Jumper Harness (L5P)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | WH/RD | 2705 | I | L5P | Oil Pressure Sensor 5V Reference | 1 | 0.5 | WH/RD | 2705 | II | L5P |
| 2 | 0.5 | BK/VT | 2755 | I | L5P | Oil Pressure Sensor Low Reference | 2 | 0.5 | BK/VT | 2755 | II | L5P |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | YE/BN | 331 | I | L5P | Oil Pressure Sensor Signal | 3 | 0.5 | YE/BN | 331 | II | L5P |
| 4 | 0.5 | BU | 410 | I | L5P | Engine Coolant Temperature Sensor Signal | 4 | 0.5 | BU | 410 | II | L5P |
| 5 | 0.5 | BK/BN | 2761 | I | L5P | Coolant Temperature Sensor Low Reference | 5 | 0.5 | BK/BN | 2761 | II | L5P |
| 6 | 0.5 | BK/WH | 251 | I | L5P | Signal Ground | 6 | 0.5 | BK/WH | 251 | II | L5P |
| 7 | 0.5 | BN/GN | 1174 | I | L5P | Oil Level Switch Signal | 7 | 0.5 | BN/GN | 1174 | II | L5P |
| 8 - 9 | — | — | — | — | — | Not Occupied | 8 - 9 | — | — | — | — | — |
| 10 | 0.5 | YE | 2928 | I | L5P | Fuel Metering Valve High Control | 10 | 0.5 | YE | 2928 | II | L5P |
| 11 | 0.5 | BN/BK | 2929 | I | L5P | Fuel Metering Valve Low Control | 11 | 0.5 | BN/BK | 2929 | II | L5P |
| 12 | — | — | — | — | — | Not Occupied | 12 | — | — | — | — | — |

## X115 Engine Harness to Body Harness





### Connector Part Information

Harness Type: Engine

OEM Connector: 15509587

Service Connector: 19119963

Description: 48-Way F 1.5 MCP, 2.8 JPT, 6.3 MCP Series, Sealed (GY)

### Connector Part Information

Harness Type: Body

OEM Connector: 15513437

Service Connector: 13586850

Description: 48-Way M 1.6, 2.8, 5.8 Series, Sealed (GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13580829 | J-35616-4A (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| II | 13580830 | J-35616-4A (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| III | 13582180 | J-35616-14 (GN) | J-38125-560 | 1241374-1 | Lear 17 | E | 2 |
| IV | 19119381 | J-35616-14 (GN) | J-38125-215A | Not Available | Not Available | Not Available | Not Available |
| V | 19119560 | J-35616-40 (BU) | J-38125-556 | 1241408-1 | Lear 28 | B | G |
| VI | 19329757 | J-35616-14 (GN) | J-38125-215A | Not Available | Not Available | Not Available | Not Available |
| VII | 13505807 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| VIII | 13575380 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| IX | 13578881 | J-35616-5 (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| X | 13580827 | J-35616-5 (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |

| | | | | | | | |
|---|---|---|---|---|---|---|---|
| X | [illegible] | [illegible] | [illegible] | Not Available | Not Available | Not Available | Not Available |
| XI | 19329756 | J-35616-42 (RD) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| XII | 19352419 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| XIII | 19353142 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

## X115 Engine Harness to Body Harness

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 3 | RD/GY | 1342 | V | — | Battery Positive Voltage | 1 | 4 | RD/GY | 1342 | XI | — |
| 2 | 0.75 | D-BU/BN | 7573 | II | — | Electric Variable Displacement Supply | 2 | 0.5 | D-BU/BN | 7573 | X | — |
| 3 | 0.5<br>0.5 | BN/WH<br>BN/WH | 419<br>419 | III<br>IV | L5P<br>-L5P | Check Engine Indicator Control<br>Check Engine Indicator Control | 3 | 0.35 | BN/WH | 419 | XII | — |
| 4 | 0.5<br>0.5 | WH/D-BU<br>WH/D-BU | 6311<br>6311 | III<br>IV | L5P<br>-L5P | Cruise/ETC/TCC Brake Signal<br>Cruise/ETC/TCC Brake Signal | 4 | 0.35 | WH/D-BU | 6311 | XII | — |
| 5 | 0.5<br>0.5 | WH<br>WH | 2501<br>2501 | III<br>IV | L5P<br>-L5P | High Speed GMLAN Serial Data (-) 1<br>High Speed GMLAN Serial Data (-) 1 | 5 | 0.5 | WH | 2501 | VII | — |
| 6 | 0.5<br>0.5 | D-BU<br>D-BU | 2500<br>2500 | III<br>IV | L5P<br>-L5P | High Speed GMLAN Serial Data (+) 1<br>High Speed GMLAN Serial Data (+) 1 | 6 | 0.5 | D-BU | 2500 | VII | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 0.5<br>0.5 | WH<br>WH | 5359<br>5359 | III<br>IV | L5P<br>-L5P | Brake Apply Sensor Control<br>Brake Apply Sensor Control | 7 | 0.35 | WH | 5359 | XII | — |
| 8 | 0.5<br>0.5 | BK/BN<br>BK/BN | 5360<br>5360 | III<br>IV | L5P<br>-L5P | Brake Apply Sensor Low Reference<br>Brake Apply Sensor Low Reference | 8 | 0.35 | BK/BN | 5360 | XII | — |
| 9 | 0.5<br>0.5 | D-BU/YE<br>D-BU/YE | 5361<br>5361 | III<br>IV | L5P<br>-L5P | Brake Apply Sensor Signal<br>Brake Apply Sensor Signal | 9 | 0.35 | D-BU/YE | 5361 | XII | — |
| 10 | 0.5 | YE/WH | 1161 | VI | — | Accelerator Pedal Position Signal 1 | 10 | 0.35 | YE/WH | 1161 | XIII | — |
| 11 | 3 | BK | 550 | V | — | Ground | 11 | 4 | BK | 550 | XI | — |
| 12 | 0.5 | WH/L-GN | 7479 | IV | — | Rotary Position Sensor Signal | 12 | 0.5 | WH/L-GN | 7479 | VII | — |
| 13 | 0.5 | YE/BK | 7478 | IV | — | Rotary Position Sensor Low Reference | 13 | 0.5 | YE/BK | 7478 | VII | — |
| 14 | 0.5 | YE/WH<br>YE/WH | 1695<br>1695 | III<br>IV | L5P<br>-L5P | Four Wheel Drive Wheel Lock Indicator Control | 14 | 0.5 | YE/WH | 1695 | VII | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.5 | | | | | Four Wheel Drive Wheel Lock Indicator Control | | | | | | |
| 15 | 0.5<br>0.5 | GY/BK<br>GY/BK | 1570<br>1570 | III<br>IV | L5P<br>-L5P | Front Axle Actuator Control<br>Front Axle Actuator Control | 15 | 0.5 | GY/BK | 1570 | VII | — |
| 16 | 0.5<br>0.5 | VT/YE<br>VT/YE | 5985<br>5985 | III<br>IV | L5P<br>-L5P | Accessory Wakeup Serial Data<br>Accessory Wakeup Serial Data | 16 | 0.35 | VT/YE | 5985 | XII | — |
| 17 | 0.5 | WH/D-BU | 5986 | III | — | Serial Data Communication Enable | 17 | 0.5 | WH/D-BU | 5986 | VII | — |
| 18 | 0.5 | WH/RD | 1164 | VI | — | Accelerator Pedal Position 5V Reference 1 | 18 | 0.35 | WH/RD | 1164 | XIII | — |
| 19 | 0.5 | BK/D-BU | 1271 | VI | — | Accelerator Pedal Position Low Reference 1 | 19 | 0.35 | BK/D-BU | 1271 | XIII | — |
| 20 | 0.75 | D-BU/YE | 7574 | II | — | Electric Variable Displacement Control | 20 | 0.5 | D-BU/YE | 7574 | X | — |
| 21 | 0.5 | WH/RD | 7477 | IV | — | Rotary Position Sensor 5V Reference | 21 | 0.5 | WH/RD | 7477 | VII | — |
| 22 | 0.5<br>0.5 | D-BU/GY<br>D-BU/GY | 7473<br>7473 | III<br>IV | L5P<br>-L5P | Incremental Encoder Impulse Signal<br>Incremental Encoder Impulse Signal | 22 | 0.35 | D-BU/GY | 7473 | XII | — |

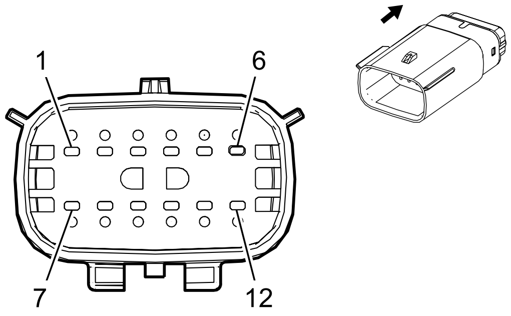
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | 0.5<br>0.5 | VT<br>VT | 7476<br>7476 | III<br>IV | L5P<br>-L5P | Incremental Encoder Sensor Low Reference<br>Incremental Encoder Sensor Low Reference | 23 | 0.35 | VT | 7476 | XII | — |
| 24 | 0.5 | YE | 5530 | IV | — | Hood Open Switch Signal | 24 | 0.5 | YE | 5530 | VII | — |
| 25 | 0.5 | BN/RD | 1274 | VI | — | Accelerator Pedal Position 5V Reference 2 | 25 | 0.35 | BN/RD | 1274 | XIII | — |
| 26 | 0.5 | L-GN/WH | 1162 | VI | — | Accelerator Pedal Position Signal 2 | 26 | 0.35 | L-GN/WH | 1162 | XIII | — |
| 27 | 0.5 | BK/VT | 1272 | VI | — | Accelerator Pedal Position Low Reference 2 | 27 | 0.35 | BK/VT | 1272 | XIII | — |
| 28 | — | — | — | — | — | Crankshaft Position Sensor Replicated Signal | 28 | 0.35 | VT/D-BU | 6091 | XII | — |
| 29 | 2.5 | YE/BN | 1569 | I | — | Transfer Case Lock Solenoid Control | 29 | 2.5 | YE/BN | 1569 | IX | — |
| 30 | 0.5<br>0.5 | WH/L-GN<br>WH/L-GN | 7475<br>7475 | III<br>IV | L5P<br>-L5P | Incremental Encoder Sensor 8V Reference<br>Incremental Encoder Sensor 8V Reference | 30 | 0.35 | WH/L-GN | 7475 | XII | — |
| 31 | 0.5 | YE | 7474 | III | L5P | Incremental Encoder Direction Signal | 31 | 0.35 | YE | 7474 | XII | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
|  | 0.5 | YE | 7474 | IV | -L5P | Incremental Encoder Direction Signal |  |  |  |  |  |  |
| 32 | 0.5<br>0.5 | BK/VT<br>BK/VT | 5077<br>5077 | IV<br>IV | L5P<br>-L5P | Current Sensor Low Reference<br>Current Sensor Low Reference | 32 | 0.35 | BK/VT | 5077 | XII | — |
| 33 | 0.5 | WH/YE | 5075 | IV | — | Current Sensor Signal | 33 | 0.35 | WH/YE | 5075 | XII | — |
| 34 | 0.5 | D-BU/VT | 5076 | IV | — | Current Sensor Control | 34 | 0.35 | D-BU/VT | 5076 | XII | — |
| 35 | 0.5<br>0.5 | D-BU/YE<br>D-BU/YE | 6105<br>6105 | III<br>IV | L5P<br>-L5P | High Speed GMLAN Serial Data (+) 2<br>High Speed GMLAN Serial Data (+) 2 | 35 | 0.5 | D-BU/YE | 6105 | VII | — |
| 36 | 0.5<br>0.5 | WH<br>WH | 6106<br>6106 | III<br>IV | L5P<br>-L5P | High Speed GMLAN Serial Data (-) 2<br>High Speed GMLAN Serial Data (-) 2 | 36 | 0.5 | WH | 6106 | VII | — |
| 37 | 0.75 | RD/D-BU | 4540 | III | — | Battery Positive Voltage | 37 | 0.75 | RD/D-BU | 4540 | VIII | — |
| 38 | 3 | YE/VT | 1553 | V | — | Transfer Case Motor Counter Clockwise Control | 38 | 4 | YE/VT | 1553 | XI | — |
|  |  | RD/VT | 2640 | II | — | Battery Positive Voltage |  |  | RD/VT | 2640 | X | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | 0.75 | RD/VT | 2640 | II | — | Battery Positive Voltage | 39 | 0.75 | RD/VT | 2640 | X | — |
| 40 | 0.5 | BN/L-GN | 4311 | III | — | Power Take Off Enable In Cab Switch Normally Closed Signal | 40 | 0.35 | BN/L-GN | 4311 | XII | — |
| 41 | 0.5 | L-GN/WH | 488 | III | — | Power Take Off Control Switch | 41 | 0.35 | L-GN/WH | 488 | XII | — |
| 42 | 0.5 | VT/BN | 300 | IV | — | Run Ignition 3 Voltage | 42 | 0.35 | VT/BN | 300 | XII | — |
| 43 | 0.5 | L-GN/BN | 507 | III | — | Wait To Start Indicator Control | 43 | 0.35 | L-GN/BN | 507 | XII | — |
| 44 | 0.5 | D-BU/YE | 68 | III | — | Low Coolant Level Indicator Control | 44 | 0.5 | D-BU/YE | 68 | VII | — |
| 45 | 0.5<br>0.5 | D-BU/GY<br>GY/RD | 636<br>6109 | IV<br>IV | L5P<br>-L5P | Outside Ambient Air Temperature Sensor Signal<br>Clutch Apply Sensor 5V Reference | 45 | 0.35<br>0.5 | D-BU/GY<br>GY/RD | 636<br>6109 | XII<br>VII | L5P<br>-L5P |
| 46 | 0.5<br>0.5 | BK/D-BU<br>BK/GY | 61<br>6110 | IV<br>IV | L5P<br>-L5P | Outside Ambient Temperature Sensor Low Reference<br>Clutch Apply Sensor Low Reference | 46 | 0.35<br>0.5 | BK/D-BU<br>BK/GY | 61<br>6110 | XII<br>VII | L5P<br>-L5P |
| 47 | 0.5 | YE | 6111 | IV | — | Clutch Apply Sensor Signal | 47 | 0.5 | YE | 6111 | VII | — |
| 48 | 3 | OG | 1552 | V | — | Transfer Case Motor Clockwise Control | 48 | 4 | YE/GY | 1552 | XI | — |

## X116 Engine Harness to Body Harness

—



## Connector Part Information

Harness Type: Engine

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way F

## Connector Part Information

Harness Type: Body

OEM Connector: 13534850

Service Connector: 13503540

Description: 12-Way M 150 MX Series, Sealed (BK)

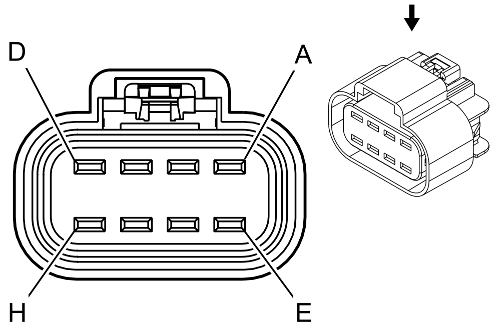
## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | 19119440 | J-35616-3 (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |

## *X116 Engine Harness to Body Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | D-BU | 2500 | I | — | High Speed GMLAN Serial Data (+) 1 | 3 | 0.5 | D-BU | 2500 | II | — |
| 4 | 0.5 | WH | 2501 | I | — | High Speed GMLAN Serial Data (-) 1 | 4 | 0.5 | WH | 2501 | II | — |
| 9 | 0.5 | D-BU/BK | 7493 | I | — | High Speed GMLAN Serial Data (+)3 | 9 | 0.5 | D-BU/BK | 7493 | II | — |
| 10 | 0.5 | WH | 7494 | I | — | High Speed GMLAN Serial Data (-)3 | 10 | 0.5 | WH | 7494 | II | — |

# X120 Forward Lamp Harness to Front Bumper Harness (Heavy Duty)



—

## Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 15326654

Service Connector: 88986254

Description: 8-Way F 280 GT Series, Sealed (BK)

## Connector Part Information

Harness Type: Front Bumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way M

### *Terminal Part Information*

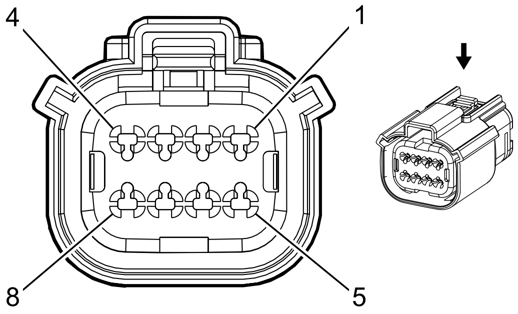
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X120 Forward Lamp Harness to Front Bumper Harness (Heavy Duty)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 1.5 | BK | 250 | I | — | Ground | A | 1.5 | BK | 250 | II | — |
| B | 0.75 | YE | 312 | I | — | Right Headlamp Low Beam Control | B | 0.75 | YE | 312 | II | — |
| C | 0.5 | WH | 311 | I | — | Right Headlamp High Beam Control | C | 0.5 | WH | 311 | II | — |
| D | — | — | — | — | — | Not Occupied | D | — | — | — | — | — |
| E | 0.5 | GY/BN | 309 | I | — | Right Park Lamp Control | E | 0.5 | GY/BN | 309 | II | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Control | | | | | | |
| F | 0.75 | L-GN/VT | 1315 | I | — | Right Front Turn Signal Lamp Control | F | 0.75 | L-GN/VT | 1315 | II | — |
| G | 0.75 | D-BU/BN | 7539 | I | — | Right Front DRL Control | G | 0.75 | D-BU/BN | 7539 | II | — |
| H | 0.5 | GY/BN | 309 | I | — | Right Park Lamp Control | H | 0.5 | GY/BN | 309 | II | — |

# X120 Forward Lamp Harness to Front Bumper Harness (Light Duty)



—

## Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13654393

Service Connector: 13577527

Description: 8-Way F 1.5 Series, Sealed (BK)

## Connector Part Information

Harness Type: Front Bumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way M

### *Terminal Part Information*

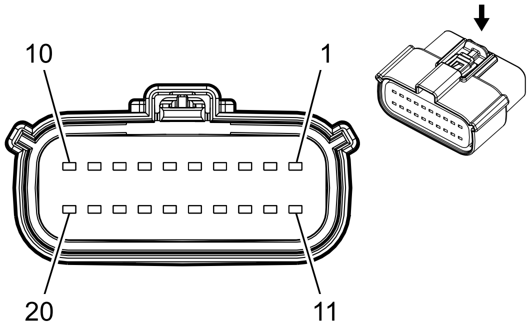
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

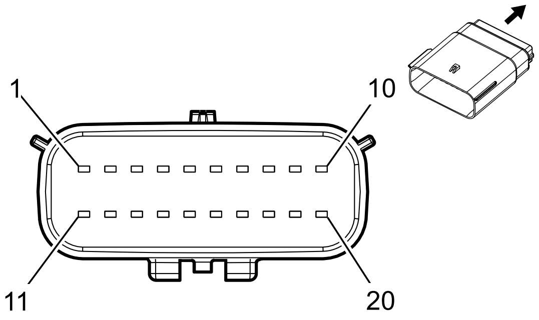
### *X120 Forward Lamp Harness to Front Bumper Harness (Light Duty)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.5 | BK | 250 | I | — | Ground | 1 | 1.5 | BK | 250 | II | — |
| 2 | 0.75 | YE | 312 | I | — | Right Headlamp Low Beam Control | 2 | 0.75 | YE | 312 | II | — |
| 3 | 0.5 | WH | 311 | I | — | Right Headlamp High Beam Control | 3 | 0.5 | WH | 311 | II | — |
| 4 | 0.5 | GY/BN | 309 | I | — | Right Park Lamp Control | 4 | 0.5 | GY/BN | 309 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.5 | WH/D-BU | 3203 | I | — | Right Headlamp Bulb Outage Signal | 5 | 0.5 | WH/D-BU | 3203 | II | — |
| 6 | 0.5 | VT/GY | 3139 | I | — | Run/Crank Ignition 1 Voltage | 6 | 0.5 | VT/GY | 3139 | II | — |
| 7 | 0.75 | L-GN/VT | 1315 | I | — | Right Front Turn Signal Lamp Control | 7 | 0.75 | L-GN/VT | 1315 | II | — |
| 8 | 0.75 | D-BU/BN | 7539 | I | — | Right Front DRL Control | 8 | 0.75 | D-BU/BN | 7539 | II | — |

# X125 Engine Harness to Chassis Harness (L5P)





## Connector Part Information

Harness Type: Engine

OEM Connector: 13650143

Service Connector: 19300557

Description: 20-Way F 1.5 Series, Sealed (BK)

## Connector Part Information

Harness Type: Chassis

OEM Connector: 33181044

Service Connector: 19351705

Description: 20-Way M 1.5 Series, Sealed (BK)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300432 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | 19300635 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| III | 19119440 | J-35616-3 (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| IV | 19119842 | J-35616-3 (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |

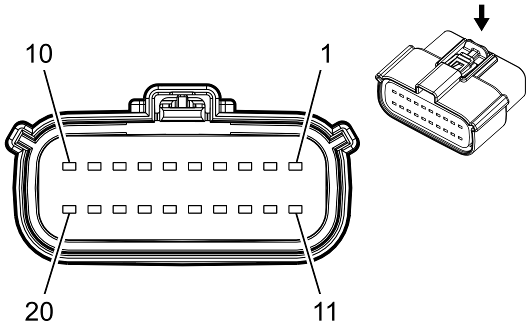
## *X125 Engine Harness to Chassis Harness (L5P)*

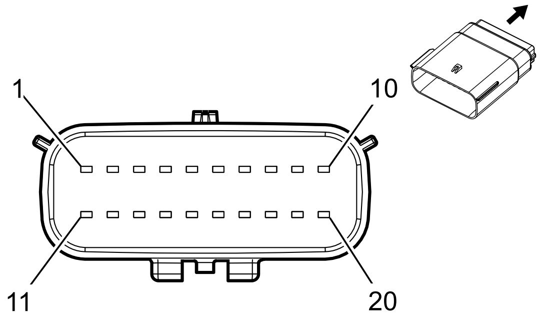
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/VT | 3661 | II | — | Exhaust Gas Temperature Sensor 5 Low Reference | 1 | 0.5 | BK/VT | 3661 | III | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0.5 | D-BU/GY | 3660 | II | — | Exhaust Gas Temperature Sensor 5 Signal | 2 | 0.5 | D-BU/GY | 3660 | III | — |
| 3 | 0.5 | BK/GY | 3659 | II | — | Exhaust Gas Temperature Sensor 4 Low Reference | 3 | 0.5 | BK/GY | 3659 | III | — |
| 4 | 0.5 | VT/BN | 3658 | II | — | Exhaust Gas Temperature Sensor 4 Signal | 4 | 0.5 | VT/BN | 3658 | III | — |
| 5 | 0.5 | D-BU/YE | 6105 | II | — | High Speed GMLAN Serial Data (+) 2 | 5 | 0.5 | D-BU/YE | 6105 | III | — |
| 6 | 0.5 | WH | 6106 | II | — | High Speed GMLAN Serial Data (-) 2 | 6 | 0.5 | WH | 6106 | III | — |
| 7 | 0.5 | BK/L-GN | 3657 | II | — | Exhaust Gas Temperature Sensor 3 Low Reference | 7 | 0.5 | BK/L-GN | 3657 | III | — |
| 8 | 0.5 | D-BU/WH | 7446 | II | — | Fuel Line Pressure Sensor Signal | 8 | 0.5 | D-BU/WH | 7446 | III | — |
| 9 | 0.5 | BK/YE | 7447 | II | — | Fuel Line Pressure Sensor Low Reference | 9 | 0.5 | BK/YE | 7447 | III | — |
| 10 | 0.5 | RD/WH | 2740 | II | — | Battery Positive Voltage | 10 | 0.5 | RD/WH | 2740 | III | — |
| 11 | 0.5 | GY/L-GN | 5378 | II | — | Exhaust Gas Temperature Sensor 3 | 11 | 0.5 | GY/L-GN | 5378 | III | — |
| 12 | 0.5 | BN/D-BU | 2926 | II | — | Hydrocarbon Injector High Control | 12 | 0.5 | BN/D-BU | 2926 | III | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0.5 | WH | 4499 | II | — | High Speed GMLAN Serial Data (-) 7 | 13 | 0.5 | WH | 4499 | III | — |
| 14 | 0.5 | D-BU/BN | 4498 | II | — | High Speed GMLAN Serial Data (+) 7 | 14 | 0.5 | D-BU/BN | 4498 | III | — |
| 15 | 0.5 | WH/RD | 6054 | II | — | Exhaust Pressure Sensor 5V Reference 1 | 15 | 0.5 | WH/RD | 6054 | III | — |
| 16 | 0.5 | BK/YE | 6055 | II | — | Exhaust Pressure Sensor Low Reference 1 | 16 | 0.5 | BK/YE | 6055 | III | — |
| 17 | 0.5 | D-BU | 6053 | II | — | Exhaust Pressure Sensor Signal 1 | 17 | 0.5 | D-BU | 6053 | III | — |
| 18 | 0.5 | BN/RD | 7445 | II | — | Fuel Line Pressure Sensor 5V Reference | 18 | 0.5 | BN/RD | 7445 | III | — |
| 19 | 1.5 | VT/D-BU | 3674 | I | — | NOx Sensor 1 Control | 19 | 1.5 | VT/D-BU | 3674 | IV | — |
| 20 | 0.5 | VT/BN | 2927 | II | — | Hydrocarbon Injector Low Control | 20 | 0.5 | VT/BN | 2927 | III | — |

# X125 Engine Harness to Chassis Harness (L96/LC8/LV3/LV1)





## Connector Part Information

Harness Type: Engine

OEM Connector: 13650143

Service Connector: 19300557

Description: 20-Way F 1.5 Series, Sealed (BK)

## Connector Part Information

Harness Type: Chassis

OEM Connector: 33181840

Service Connector: 19300560

Description: 20-Way M 1.5 Series, Sealed (BK)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300635 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | 19119440 | J-35616-3 (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |

## *X125 Engine Harness to Chassis Harness (L96/LC8/LV3/LV1)*

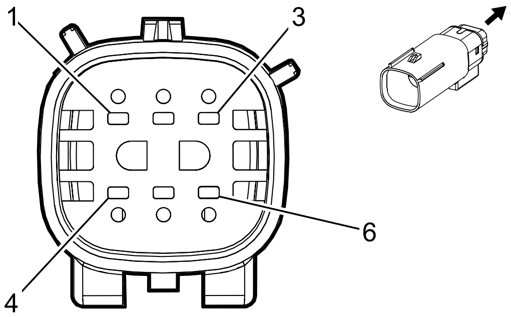
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/D-BU | 3120 | I | — | Heated Oxygen Sensor High Signal Bank 1 Sensor 2 | 1 | 0.5 | VT/D-BU | 3120 | II | — |
| 2 | 0.5 | WH/YE | 3121 | I | — | Heated Oxygen Sensor Low Signal Bank 1 Sensor 2 | 2 | 0.5 | WH/YE | 3121 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | GY/WH | 3122 | I | — | Heated Oxygen Sensor Heater Low Control Bank 1 Sensor 2 | 3 | 0.5 | GY/WH | 3122 | II | — |
| 4 | 0.5 | VT/D-BU | 5294 | I | — | Powertrain Main Relay Fused Supply 5 | 4 | 0.5 | VT/D-BU | 5294 | II | — |
| 5 | 0.5 | D-BU/YE | 6105 | I | — | High Speed GMLAN Serial Data (+) 2 | 5 | 0.5 | D-BU/YE | 6105 | II | — |
| 6 | 0.5 | WH | 6106 | I | — | High Speed GMLAN Serial Data (-) 2 | 6 | 0.5 | WH | 6106 | II | — |
| 7 | 0.5 | WH | 1310 | I | — | EVAP Canister Vent Solenoid Control | 7 | 0.5 | WH | 1310 | II | — |
| 8 | 0.5<br>0.5 | D-BU/WH<br>D-BU/WH | 1937<br>7446 | I<br>I | L96/LC8<br>-L96/LC8 | Secondary Fuel Level Sensor Signal<br>Fuel Line Pressure Sensor Signal | 8 | 0.5 | D-BU/WH | 7446 | II | — |
| 9 | 0.5 | BK/YE | 7447 | I | — | Fuel Line Pressure Sensor Low Reference | 9 | 0.5 | BK/YE | 7447 | II | — |
| 10 | — | — | — | — | — | Not Occupied | 10 | — | — | — | — | — |
| 11 | 0.5 | D-BU/VT | 1589 | I | — | Primary Fuel Level Sensor Signal | 11 | 0.5 | D-BU/VT | 1589 | II | — |
| 12 | 0.5 | BK/L-GN | 6281 | I | — | Fuel Level Sensor Low Reference | 12 | 0.5 | BK/L-GN | 6281 | II | — |
| 13 | 0.5 | D-BU/BK | 7493 | I | — | High Speed GMLAN Serial Data (+)3 | 13 | 0.5 | D-BU/BK | 7493 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | | | | | |
| 14 | 0.5 | WH | 7494 | I | — | High Speed GMLAN Serial Data (-)3 | 14 | 0.5 | WH | 7494 | II | — |
| 15 | 0.5 | D-BU/WH | 890 | I | — | Fuel Tank Pressure Sensor Signal | 15 | 0.5 | D-BU/WH | 890 | II | — |
| 16 | 0.5 | YE/RD | 2709 | I | — | Fuel Tank Pressure Sensor 5V Reference | 16 | 0.5 | YE/RD | 2709 | II | — |
| 17 | 0.5 | WH | 1579 | I | — | Fuel Temperature/Composition Signal | 17 | 0.5 | WH | 1579 | II | — |
| 18 | 0.5 | BN/RD | 7445 | I | — | Fuel Line Pressure Sensor 5V Reference | 18 | 0.5 | BN/RD | 7445 | II | — |
| 19 - 20 | — | — | — | — | — | Not Occupied | 19 - 20 | — | — | — | — | — |

## X132 Aero Shutter Jumper Harness to Forward Lamp Harness

—



### Connector Part Information

Harness Type: Aero Shutter Jumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F

### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 33104948

Service Connector: 19333101

Description: 6-Way M 150 MX Series, Sealed (GY)

### *Terminal Part Information*

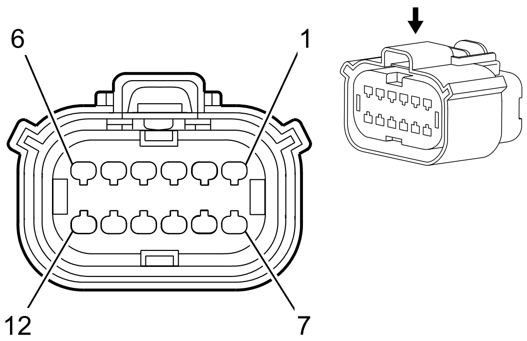
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X132 Aero Shutter Jumper Harness to Forward Lamp Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1 | BK | 250 | I | — | Ground | 1 | 1 | BK | 250 | II | — |
| 2 | 0.5 | VT/D-BU | 5290 | I | — | Powertrain Main Relay Fused Supply 1 | 2 | 0.5 | VT/D-BU | 5290 | II | — |
| 3 | 0.5 | L-GN/VT | 4621 | I | — | Local Interconnect Network Serial Data Bus 21 | 3 | 0.5 | L-GN/VT | 4621 | II | — |
| 5 | 0.5 | BK/D-BU | 61 | I | — | Outside Ambient Temperature Sensor Low Reference | 5 | 0.5 | BK/D-BU | 61 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 0.5 | D-BU/GY | 636 | I | — | Outside Ambient Air Temperature Sensor Signal | 6 | 0.5 | D-BU/GY | 636 | II | — |

## X134 Chassis Harness to Ignition Coil Harness



—

### Connector Part Information

Harness Type: Chassis

OEM Connector: 13609715

Service Connector: 19178148

Description: 12-Way F 1.5 Series, Sealed (BK)

### Connector Part Information

Harness Type: Ignition Coil

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way M

### *Terminal Part Information*

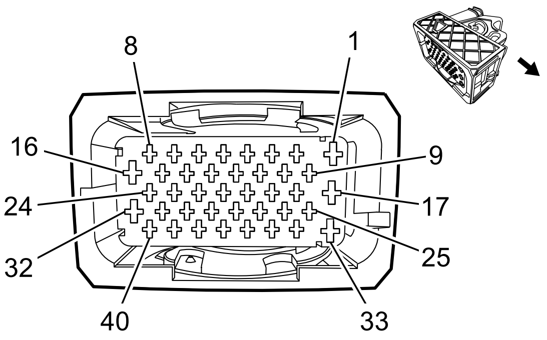
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

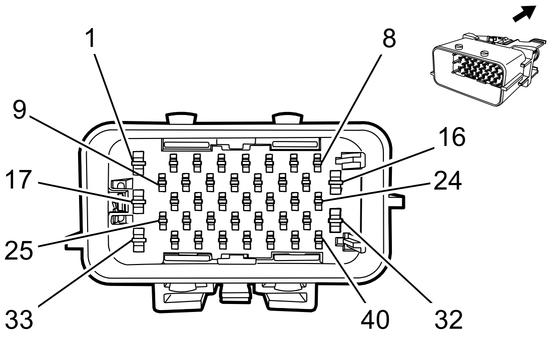
### *X134 Chassis Harness to Ignition Coil Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | — | — | — | — | — | Not Occupied | 1 | — | — | — | — | — |
| 2 | 0.5 | WH | 2501 | I | — | High Speed GMLAN Serial Data (-) 1 | 2 | 0.5 | WH | 2501 | II | — |
| 3 | 0.5 | D-BU | 2500 | I | — | High Speed GMLAN Serial Data (+) 1 | 3 | 0.5 | D-BU | 2500 | II | — |
| 4 | 0.5 | WH | 6106 | I | — | High Speed GMLAN Serial Data (-) 2 | 4 | 0.5 | WH | 6106 | II | — |
| 5 | 0.5 | D-BU/YE | 6105 | I | — | High Speed GMLAN Serial Data (+) 2 | 5 | 0.5 | D-BU/YE | 6105 | II | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.5 | | | | | Serial Data (+) 2 | 5 | 0.5 | | | |
| 6 - 7 | — | — | — | — | — | Not Occupied | 6 - 7 | — | — | — | — |
| 8 | 0.5 | WH/D-BU | 5986 | I | — | Serial Data Communication Enable | 8 | 0.5 | WH/D-BU | 5986 | II | — |
| 9 | 0.5 | WH | 2501 | I | — | High Speed GMLAN Serial Data (-) 1 | 9 | 0.5 | WH | 2501 | II | — |
| 10 | 0.5 | D-BU | 2500 | I | — | High Speed GMLAN Serial Data (+) 1 | 10 | 0.5 | D-BU | 2500 | II | — |
| 11 | 0.5 | WH | 6106 | I | — | High Speed GMLAN Serial Data (-) 2 | 11 | 0.5 | WH | 6106 | II | — |
| 12 | 0.5 | D-BU/YE | 6105 | I | — | High Speed GMLAN Serial Data (+) 2 | 12 | 0.5 | D-BU/YE | 6105 | II | — |

## X138 Chassis Harness to Body Harness





### Connector Part Information

Harness Type: Chassis

OEM Connector: 13603185

Service Connector: 13576549

Description: 40-Way F 1.5, 2.8 Series, Sealed (BK)

### Connector Part Information

Harness Type: Body

OEM Connector: 13603208

Service Connector: 13576551

Description: 40-Way M 1.5 DSQ, 2.8 ATS Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13578884 | J-35616-14 (GN) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| II | 13580829 | J-35616-4A (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| III | 13580834 | J-35616-14 (GN) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| IV | 19353105 | J-35616-4A (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| V | 13505807 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| VI | 13575380 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| VII | 13578881 | J-35616-5 (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| VIII | 13580827 | J-35616-5 (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| IX | 19352419 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

### *X138 Chassis Harness to Body Harness*

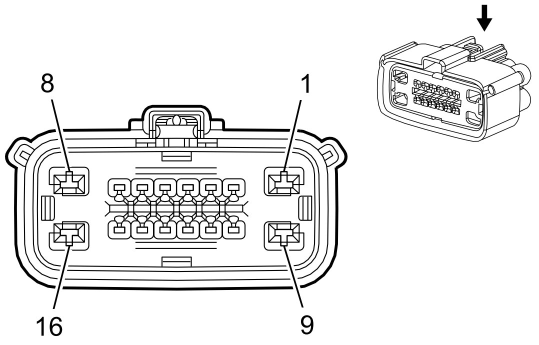
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | L-GN/BK | 7633 | IV | — | Integrated Trailer Brake Controller User Gain Signal | 1 | 0.5 | L-GN/BK | 7633 | VIII | — |
| 2 | 0.5 | L-GN/BN | 2087 | I | — | Combined Vehicle Inertial Sensor Supply Voltage | 2 | 0.35 | L-GN/BN | 2087 | IX | — |
| 3 | 0.5 | YE | 7635 | I | — | Integrated Trailer Brake Controller Manual Apply Signal | 3 | 0.5 | YE | 7635 | V | — |
| 4 | 0.5 | D-BU/RD | 7632 | I | — | Integrated Trailer Brake Controller Switch 5V Reference | 4 | 0.5 | D-BU/RD | 7632 | V | — |
| 5 | 0.5 | BN | 7634 | I | — | Integrated Trailer Brake Controller Redundant Manual Apply Signal | 5 | 0.5 | BN | 7634 | V | — |
| 6 | 0.5 | BK/BN | 7631 | I | — | Integrated Trailer Brake Controller Switch Low Reference | 6 | 0.5 | BK/BN | 7631 | V | — |
| 7 | — | — | — | — | — | Not Occupied | 7 | — | — | — | — | — |
| 8 | 0.5 | L-GN | 5060 | I | — | Low Speed GMLAN Serial Data | 8 | 0.5 | L-GN | 5060 | V | — |
| 9 | 0.5 | BN/WH | 2374 | I | — | Object Sensor Control | 9 | 0.35 | BN/WH | 2374 | IX | — |
| 10 | — | — | — | — | — | Not Occupied | 10 | — | — | — | — | — |
| 11 | 0.5 | YE | 2375 | I | — | Left Rear Corner Object Sensor Signal | 11 | 0.35 | YE | 2375 | IX | — |
| 12 | 0.5 | YE/D-BU | 2376 | I | — | Left Rear Middle Object Sensor Signal | 12 | 0.35 | YE/D-BU | 2376 | IX | — |

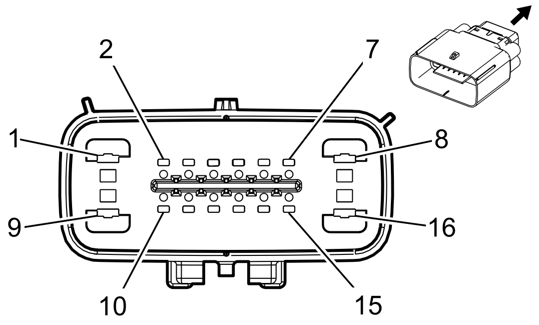
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0.5 | YE/VT | 2378 | I | — | Right Rear Corner Object Sensor Signal | 13 | 0.35 | YE/VT | 2378 | IX | — |
| 14 | 0.5 | YE/WH | 2377 | I | — | Right Rear Middle Object Sensor Signal | 14 | 0.35 | YE/WH | 2377 | IX | — |
| 15 | — | — | — | — | — | Not Occupied | 15 | — | — | — | — | — |
| 16 | 0.5 | L-GN/YE | 6846 | IV | — | Rear License Lamp Control | 16 | 0.5 | L-GN/YE | 6846 | VIII | — |
| 17 | 0.5 | WH/D-BU | 5986 | IV | — | Serial Data Communication Enable | 17 | 0.5 | WH/D-BU | 5986 | VIII | — |
| 18 | 0.5 | D-BU | 2500 | I | — | High Speed GMLAN Serial Data (+) 1 | 18 | 0.5 | D-BU | 2500 | V | — |
| 19 | 0.5 | WH | 2501 | I | — | High Speed GMLAN Serial Data (-) 1 | 19 | 0.5 | WH | 2501 | V | — |
| 20 | 0.5 | VT/YE | 5985 | I | — | Accessory Wakeup Serial Data | 20 | 0.5 | VT/YE | 5985 | V | — |
| 21 | 0.5 | BK/GY | 2379 | I | — | Object Sensor Low Reference | 21 | 0.35 | BK/GY | 2379 | IX | — |
| 22 | — | — | — | — | — | Not Occupied | 22 | — | — | — | — | — |
| 23 | 0.5 | GY/BN | 309 | I | — | Right Park Lamp Control | 23 | 0.5 | GY/BN | 309 | V | — |
| 24 | 0.75 | BN/YE | 294 | III | — | Door Lock Actuator Unlock Control | 24 | 0.75 | BN/YE | 294 | VI | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 25 | 0.75 | GY | 5911 | III | — | Door Lock Actuator Lock Control 2 | 25 | 0.75 | GY | 295 | VI | — |
| 26 | 0.5 | D-BU/BK | 7493 | I | — | High Speed GMLAN Serial Data (+)3 | 26 | 0.5 | D-BU/BK | 7493 | V | — |
| 27 | 0.5 | WH | 7494 | I | — | High Speed GMLAN Serial Data (-)3 | 27 | 0.5 | WH | 7494 | V | — |
| 28 | — | — | — | — | — | Not Occupied | 28 | — | — | — | — | — |
| 29 | 0.5 | BK | 2550 | I | — | Ground | 29 | 0.75 | BK | 2550 | VI | — |
| 30 | 0.5 | BK | 6974 | I | — | Camera Low Reference | 30 | 0.5 | BK | 6974 | V | — |
| 31 | — | — | — | — | — | Not Occupied | 31 | — | — | — | — | — |
| 32 | 2.5 | D-BU | 47 | II | — | Trailer Auxiliary Control | 32 | 2.5 | D-BU | 47 | VII | — |
| 33 | — | — | — | — | — | Battery Positive Voltage | 33 | 2.5 | RD/D-BU | 1842 | VII | — |
| 34 - 35 | — | — | — | — | — | Not Occupied | 34 - 35 | — | — | — | — | — |
| 36 | 0.75 | WH/VT | 1430 | III | — | Exterior Courtesy Lamp Control | 36 | 0.75 | WH/VT | 1430 | VI | — |
| 37 | 0.5 | GY/YE | 6972 | I | — | Camera Signal 2 + | 37 | 0.35 | GY/YE | 6972 | IX | — |
| 38 | 0.5 | WH/D-BU | 6973 | I | — | Camera Signal 2 | 38 | 0.35 | WH/D-BU | 6973 | IX | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 39 | 0.5 | BN/WH | 7462 | I | — | Running Boards Disable Signal | 39 | 0.35 | D-BU/YE | 6844 | IX | — |
| 40 | 0.5 | L-GN/GY | 817 | I | — | Vehicle Speed Signal | 40 | 0.5 | L-GN/GY | 817 | V | — |

## X143 DEF Jumper Harness to Engine Harness (L5P)





### Connector Part Information

Harness Type: DEF Jumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way F

### Connector Part Information

Harness Type: Engine

OEM Connector: 33182033

Service Connector: 19354088

Description: 16-Way M 150 MX Series, Sealed (L-GY)

### *Terminal Part Information*

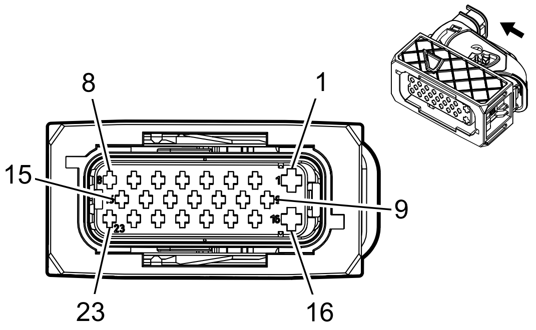
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | 19119440 | J-35616-3 (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| III | 19329833 | J-35616-5 (PU) | J-38125-12A | 1326030-6 | Lear 17 | E | 2 |
| IV | 19329833 | J-35616-5 (PU) | J-38125-12A | 1326030-6 | Lear 17 | E | C |
| V | 19329833 | J-35616-5 (PU) | J-38125-12A | Not Available | Not Available | Not Available | Not Available |

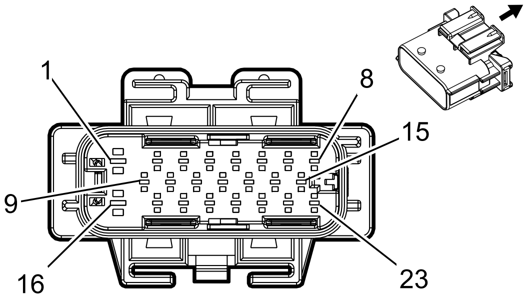
### *X143 DEF Jumper Harness to Engine Harness (L5P)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | RD/WH | 3440 | I | — | Battery Positive Voltage | 1 | 0.75 | RD/WH | 3440 | IV | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 - 3 | — | — | — | — | — | Not Occupied | 2 - 3 | — | — | — | — | — |
| 4 | 0.5 | WH | 4499 | I | — | High Speed GMLAN Serial Data (-) 7 | 4 | 0.5 | WH | 4499 | II | — |
| 5 | 0.5 | D-BU/BN | 4498 | I | — | High Speed GMLAN Serial Data (+) 7 | 5 | 0.5 | D-BU/BN | 4498 | II | — |
| 6 - 7 | — | — | — | — | — | Not Occupied | 6 - 7 | — | — | — | — | — |
| 8 | 2.5 | BK | 550 | I | — | Ground | 8 | 2.5 | BK | 550 | V | — |
| 9 | 0.5 | VT/L-GN | 4320 | I | — | Selective Catalytic Reduction Power Module Wake-Up Signal | 9 | 0.5 | VT/L-GN | 4320 | III | — |
| 10 - 13 | — | — | — | — | — | Not Occupied | 10 - 13 | — | — | — | — | — |
| 14 | 0.5 | WH | 4499 | I | — | High Speed GMLAN Serial Data (-) 7 | 14 | 0.5 | WH | 4499 | II | — |
| 15 | 0.5 | D-BU/BN | 4498 | I | — | High Speed GMLAN Serial Data (+) 7 | 15 | 0.5 | D-BU/BN | 4498 | II | — |
| 16 | 2.5 | D-BU | 3921 | I | — | DEF Heater Supply 1 | 16 | 2.5 | D-BU | 3921 | V | — |

## X150 Body Harness to Forward Lamp Harness (Extended Cab)





### Connector Part Information

Harness Type: Body

OEM Connector: 13674800

Service Connector: 19300480

Description: 23-Way F 1.5 DSQ, 2.8 AST Series, Sealed (BK)

### Connector Part Information

Harness Type: Forward Lamp

OEM Connector: 13750011

Service Connector: 19301797

Description: 23-Way M 1.5, 2.8 Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575389 | J-35616-4A (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| II | 13576369 | J-35616-14 (GN) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| III | 13575380 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| IV | 13580827 | J-35616-5 (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |

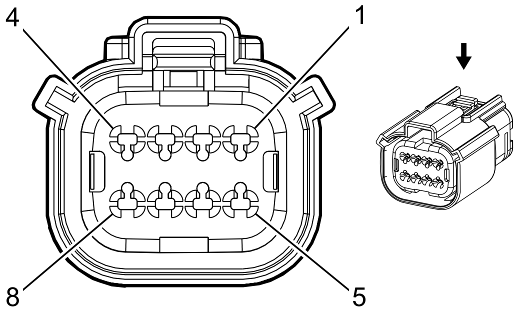
### *X150 Body Harness to Forward Lamp Harness (Extended Cab)*

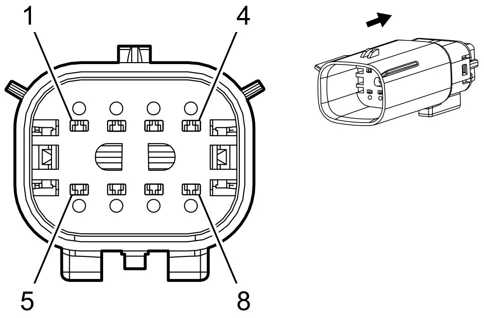
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.35 | BK/D-BU | 61 | I | — | Outside Ambient Temperature Sensor Low Reference | 1 | 0.5 | BK/D-BU | 61 | IV | — |
| 2 - 3 | — | — | — | — | — | Not Occupied | 2 - 3 | — | — | — | — | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 - 3 | — | — | — | — | — | Not Occupied | 2 - 3 | — | — | — | — | — |
| 4 | 0.35 | YE/GY | 5216 | II | — | Front Parking Left Mid Sensor | 4 | 0.5 | YE/GY | 5216 | III | — |
| 5 | 0.35 | WH/GY | 5217 | II | — | Front Parking Right Corner Sensor | 5 | 0.5 | WH/GY | 5217 | III | — |
| 6 | 0.35 | VT/GY | 5218 | II | — | Front Parking Right Mid Sensor | 6 | 0.5 | VT/GY | 5218 | III | — |
| 7 | 0.35 | BK/D-BU | 5214 | II | — | Front Parking Sensor Low Reference | 7 | 0.5 | BK/D-BU | 5214 | III | — |
| 8 | 0.35 | VT/WH | 5215 | II | — | Front Parking Left Corner Sensor | 8 | 0.5 | VT/WH | 5215 | III | — |
| 9 - 10 | — | — | — | — | — | Not Occupied | 9 - 10 | — | — | — | — | — |
| 11 | 0.35 | OG/L-GN | 1409 | II | — | Right Front Discriminating Sensor Signal | 11 | 0.5 | OG/L-GN | 1409 | III | — |
| 12 | 0.35 | BK/OG | 5600 | II | — | Right Front Discriminating Sensor Low Reference | 12 | 0.5 | BK/OG | 5600 | III | — |
| 13 | — | — | — | — | — | Not Occupied | 13 | — | — | — | — | — |
| 14 | 0.35 | VT | 185 | II | — | Low Washer Fluid Indicator Control | 14 | 0.5 | VT | 185 | III | — |
| 15 | 0.35 | YE/VT | 5213 | II | — | Front Parking Left/Right/Mid Sensor | 15 | 0.5 | YE/VT | 5213 | III | — |
| 16 | 0.35 | D-BU/GY | 636 | I | — | Outside Ambient Air Temperature Sensor Signal | 16 | 0.5 | D-BU/GY | 636 | IV | — |
| | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 - 19 | — | — | — | — | — | Not Occupied | 17 - 19 | — | — | — | — | — |
| 20 | 0.35 | OG/YE | 354 | II | — | Middle Front Discriminating Sensor Signal<br>Left Front Discriminating Sensor Signal | 20 | 0.5<br>0.5 | OG/GY<br>OG/YE | 6618<br>354 | III<br>III | 3500<br>1500/2500 |
| 21 | 0.35 | BK/OG | 5045 | II | — | Middle Front Discriminating Sensor Low Reference<br>Left Front Discriminating Sensor Low Reference | 21 | 0.5<br>0.5 | BK/OG<br>BK/OG | 6619<br>5045 | III<br>III | 3500<br>1500/2500 |
| 22 | 0.5 | YE | 5530 | II | — | Hood Open Switch Signal | 22 | 0.5 | YE | 5530 | III | — |
| 23 | 0.5 | BN/L-GN | 109 | II | — | Hood Ajar Switch Signal | 23 | 0.5 | BN/L-GN | 109 | III | — |

## X154 Engine Harness to Camshaft Position Sensor Jumper Harness





### Connector Part Information

Harness Type: Engine

OEM Connector: 13884361

Service Connector: 19301723

Description: 8-Way F 1.5 Series, Sealed (BK)

### Connector Part Information

Harness Type: Camshaft Position Sensor Jumper

OEM Connector: 13790317

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

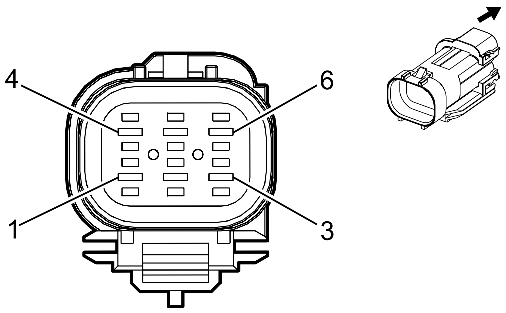
### *X154 Engine Harness to Camshaft Position Sensor Jumper Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/D-BU | 5300 | I | — | Camshaft Position Intake Sensor Control 1 | 1 | 0.5 | GY/D-BU | 5300 | II | — |
| 2 | 0.5 | BK/L-GN | 5301 | I | — | Camshaft Position Intake Sensor Low Reference 1 | 2 | 0.5 | BK/L-GN | 5301 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | YE/VT | 5275 | I | — | Camshaft Position Intake Sensor 1 | 3 | 0.5 | YE/VT | 5275 | II | — |
| 4 | 0.5 | D-BU | 179 | I | — | Oil Pump Command Signal | 4 | 0.5 | D-BU | 179 | II | — |
| 5 | 0.5 | VT/BN | 5284 | I | — | Camshaft Phaser Intake Solenoid 1 | 5 | 0.5 | VT/BN | 5284 | II | — |
| 6 | 0.5 | BK/BN | 6753 | I | — | Cam Phaser W Low Reference | 6 | 0.5 | BK/BN | 6753 | II | — |
| 7 | 0.75 | VT/D-BU | 5293 | I | — | Powertrain Main Relay Fused Supply 4 | 7 | 0.5 | VT/D-BU | 5293 | II | — |
| 8 | — | — | — | — | — | Not Occupied | 8 | — | — | — | — | — |

## X158 Auxilary Battery Harness to Engine Harness

—



### Connector Part Information

Harness Type: Auxilary Battery

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F

### Connector Part Information

Harness Type: Engine

OEM Connector: 13893482

Service Connector: 19329921

Description: 6-Way M 2.8 Series, Sealed (BK)

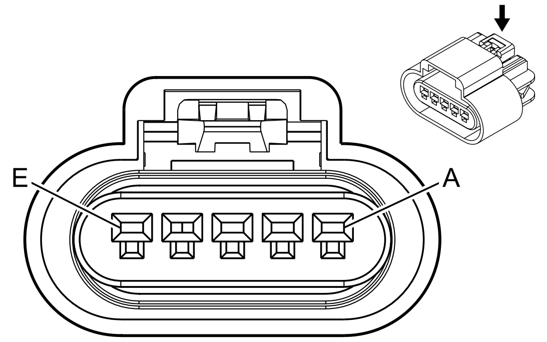
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X158 Auxilary Battery Harness to Engine Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | VT/BN | 300 | I | — | Run Ignition 3 Voltage | 1 | 0.5 | VT/BN | 300 | II | — |
| 3 | 0.5 | RD/WH | 3440 | I | — | Battery Positive Voltage | 3 | 0.5 | RD/WH | 3440 | II | — |
| 4 | 1 | BK | 550 | I | — | Ground | 4 | 1 | BK | 550 | II | — |
| 6 | 2.5 | RD/L-GN | 742 | I | — | Battery Positive Voltage | 6 | 2.5 | RD/L-GN | 742 | II | — |

## X159 Engine Harness to Camshaft Position Sensor Jumper Harness



—

### Connector Part Information

Harness Type: Engine

OEM Connector: 15326822

Service Connector: 13585858

Description: 5-Way F 150 GT Series, Sealed (BK)

### Connector Part Information

Harness Type: Camshaft Position Sensor Jumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 5-Way M

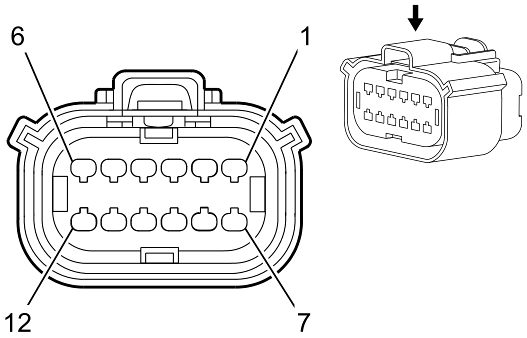
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X159 Engine Harness to Camshaft Position Sensor Jumper Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0.5 | GY/D-BU | 5300 | I | — | Camshaft Position Intake Sensor Control 1 | A | 0.5 | GY/D-BU | 5300 | II | — |
| B | 0.5 | BK/L-GN | 5301 | I | — | Camshaft Position Intake Sensor Low Reference 1 | B | 0.5 | BK/L-GN | 5301 | II | — |
| C | 0.5 | YE/VT | 5275 | I | — | Camshaft Position Intake Sensor 1 | C | 0.5 | YE/VT | 5275 | II | — |
| D | 0.5 | VT/BN | 5284 | I | — | Camshaft Phaser Intake Solenoid 1 | D | 0.5 | VT/BN | 5284 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| E | 0.5 | BK/BN | 6753 | I | — | Cam Phaser W Low Reference | E | 0.5 | BK/BN | 6753 | II | — |



—

## Connector Part Information

Harness Type: Engine

OEM Connector: 13653762

Service Connector: 13503528

Description: 12-Way F 1.5 Series, Sealed (BK)

## Connector Part Information

Harness Type: Odd Fuel Injector

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way M

## *Terminal Part Information*

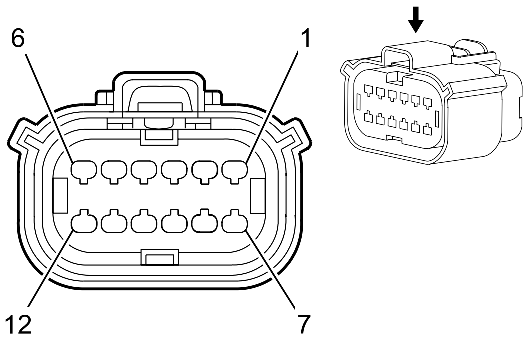
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | 19300635 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| III | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *X160 Engine Harness to Odd Fuel Injector Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | — | — | — | — | — | Not Occupied | 1 | — | — | — | — | — |
| 2 | 0.75 | BN/WH | 4901 | I | — | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 1 | 2 | 0.75 | BN/WH | 4901 | III | — |
| 3 | 0.75 | L-GN/BK | 4903 | I | — | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 3 | 3 | 0.75 | L-GN/BK | 4903 | III | — |
| 4 | 0.75 | L-GN/WH | 4905 | I | — | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 5 | 4 | 0.75 | L-GN/WH | 4905 | III | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.75 | BN | 4801 | I | — | Direct Fuel Injector (DFI) High Voltage Control Cylinder 1 | 5 | 0.75 | BN | 4801 | III | — |
| 6 - 7 | — | — | — | — | — | Not Occupied | 6 - 7 | — | — | — | — | — |
| 8 | 0.75 | L-GN | 4803 | I | — | Direct Fuel Injector (DFI) High Voltage Control Cylinder 3 | 8 | 0.75 | L-GN | 4803 | III | — |
| 9 | 0.75 | WH/L-GN | 4805 | I | — | Direct Fuel Injector (DFI) High Voltage Control Cylinder 5 | 9 | 0.75 | WH/L-GN | 4805 | III | — |
| 10 | 0.5 | BN/RD | 2917 | II | — | Fuel Rail Pressure Sensor 5V Reference | 10 | 0.5 | BN/RD | 2917 | III | — |
| 11 | 0.5 | D-BU/WH | 2918 | II | — | Fuel Rail Pressure Sensor Signal | 11 | 0.5 | D-BU/WH | 2918 | III | — |
| 12 | 0.5 | BK/L-GN | 2919 | II | — | Fuel Rail Pressure Sensor Low Reference | 12 | 0.5 | BK/L-GN | 2919 | III | — |

## X161 Engine Harness to Even Fuel Injector Harness



—

### Connector Part Information

Harness Type: Engine

OEM Connector: 13863397

Service Connector: 19329931

Description: 12-Way F 1.5 Series, Sealed (BK)

### Connector Part Information

Harness Type: Even Fuel Injector

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way M

### *Terminal Part Information*

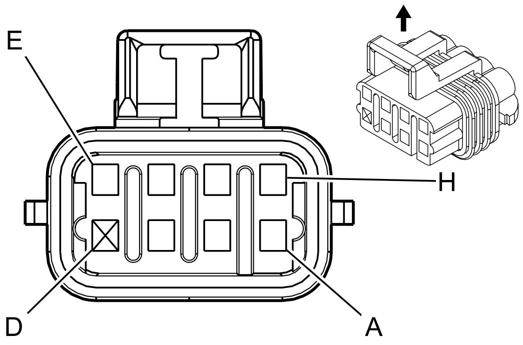
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575808 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

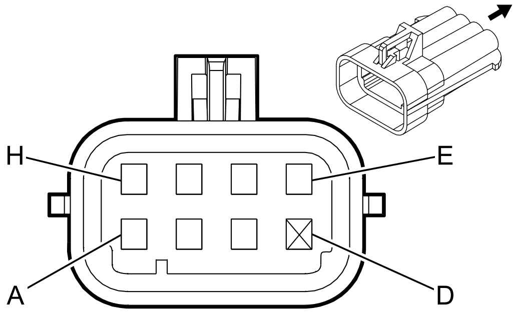
### *X161 Engine Harness to Even Fuel Injector Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | — | — | — | — | — | Not Occupied | 1 | — | — | — | — | — |
| 2 | 0.75 | BN/L-GN | 4902 | I | — | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 2 | 2 | 0.75 | BN/L-GN | 4902 | II | — |
| 3 | 0.75 | D-BU/WH | 4904 | I | — | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 4 | 3 | 0.75 | D-BU/WH | 4904 | II | — |
| 4 | 0.75 | VT | 4906 | I | — | Direct Fuel Injector (DFI) High Voltage Supply Cylinder 6 | 4 | 0.75 | VT | 4906 | II | — |
| 5 | 0.75 | D-BU | 4802 | I | — | Direct Fuel Injector (DFI) High Voltage | 5 | 0.75 | D-BU | 4802 | II | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| | 0.75 | | | | | (DFI) High Voltage Control Cylinder 2 | | 0.75 | | | | |
| 6 - 7 | — | — | — | — | — | Not Occupied | 6 - 7 | — | — | — | — | — |
| 8 | 0.75 | GY/D-BU | 4804 | I | — | Direct Fuel Injector (DFI) High Voltage Control Cylinder 4 | 8 | 0.75 | GY/D-BU | 4804 | II | — |
| 9 | 0.75 | L-GN/VT | 4806 | I | — | Direct Fuel Injector (DFI) High Voltage Control Cylinder 6 | 9 | 0.75 | L-GN/VT | 4806 | II | — |
| 10 | 0.75 | VT/BK | 7300 | I | — | High Pressure Fuel Pump Actuator Low - Control | 10 | 0.75 | VT/BK | 7300 | II | — |
| 11 | 0.75 | YE | 7301 | I | — | High Pressure Fuel Pump Actuator High - Control | 11 | 0.75 | YE | 7301 | II | — |
| 12 | — | — | — | — | — | Not Occupied | 12 | — | — | — | — | — |

## X170 Engine Harness to Ignition Coil Odd Jumper Harness (L96 (ODD BANK))





### Connector Part Information

Harness Type: Engine

OEM Connector: 12047938

Service Connector: 13580883

Description: 8-Way F 150 Metri-Pack Series, Sealed (L-GY)

### Connector Part Information

Harness Type: Ignition Coil Jumper

OEM Connector: 15496016

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way M 150 Metri-Pack Series (GY)

### *Terminal Part Information*

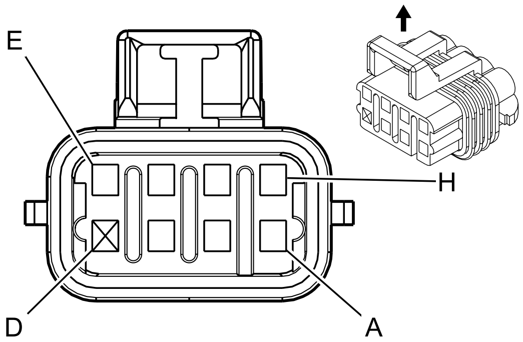
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

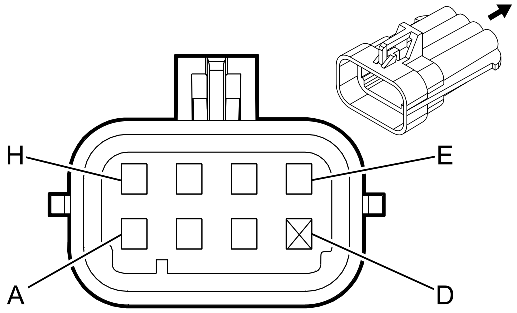
### *X170 Engine Harness to Ignition Coil Odd Jumper Harness (L96 (ODD BANK))*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0.75 | BK | 350 | I | — | Ground | A | 0.8 | BK | 350 | II | — |
| B | 0.5 | L-GN/GY | 2127 | I | — | Ignition Control 7 | B | 0.5 | RD | 2127 | II | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | 0.5 | D-BU/GY | 2125 | I | — | Ignition Control 5 | C | 0.5 | D-GN | 2125 | II | — |
| E | 0.5 | BK/D-BU | 2129 | I | — | Ignition Control Low Reference Bank 1 | E | 0.5 | BN | 2129 | II | — |
| F | 0.5 | L-GN/D-BU | 2123 | I | — | Ignition Control 3 | F | 0.5 | L-BU | 2123 | II | — |
| G | 0.5 | D-BU/VT | 2121 | I | — | Ignition Control 1 | G | 0.5 | VT | 2121 | II | — |
| H | 0.75 | VT/D-BU | 5291 | I | — | Powertrain Main Relay Fused Supply 2 | H | 0.8 | PK | 39 | II | — |

## X171 Engine Harness to Ignition Coil Even Jumper Harness (L96 (EVEN BANK))





### Connector Part Information

Harness Type: Engine

OEM Connector: 12047938

Service Connector: 13580883

Description: 8-Way F 150 Metri-Pack Series, Sealed (L-GY)

### Connector Part Information

Harness Type: Ignition Coil Jumper

OEM Connector: 15496016

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way M 150 Metri-Pack Series (GY)

### *Terminal Part Information*

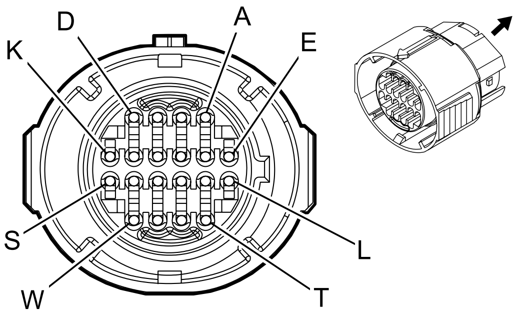
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X171 Engine Harness to Ignition Coil Even Jumper Harness (L96 (EVEN BANK))*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0.75 | BK | 350 | I | — | Ground | A | 0.8 | BK | 450 | II | — |
| B | 0.5 | D-BU/WH | 2122 | I | — | Ignition Control 2 | B | 0.5 | BU/WH | 2122 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| C | 0.5 | YE/D-BU | 2124 | I | — | Ignition Control 4 | C | 0.5 | YE/BU | 2124 | II | — |
| E | 0.5 | BK/GY | 2130 | I | — | Ignition Control Low Reference Bank 2 | E | 0.5 | BN | 2129 | II | — |
| F | 0.5 | BN/D-BU | 2126 | I | — | Ignition Control 6 | F | 0.5 | BN/BU | 2126 | II | — |
| G | 0.5 | VT/WH | 2128 | I | — | Ignition Control 8 | G | 0.5 | VT/WH | 2128 | II | — |
| H | 0.75 | VT/D-BU | 5292 | I | — | Powertrain Main Relay Fused Supply 3 | H | 0.8 | PK | 39 | II | — |

## X175 Engine Harness to Transmission Harness (MW7)



—

### Connector Part Information

Harness Type: Engine

OEM Connector: 13603424

Service Connector: 13503285

Description: 20-Way F 100W Micro-Pack Series, Sealed (BK)

### Connector Part Information

Harness Type: Transmission

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 20-Way M

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13579969 | J-35616-6 (BN) | J-38125-33 | 12084913 | Delphi 5 | W | W |
| II | 19301406 | J-35616-6 (BN) | J-38125-33 | 12084912 | Delphi 5 | W | W |
| III | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

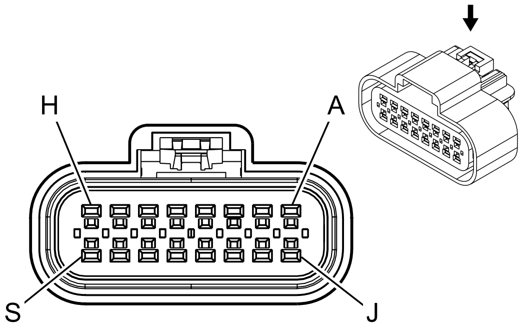
### *X175 Engine Harness to Transmission Harness (MW7)*

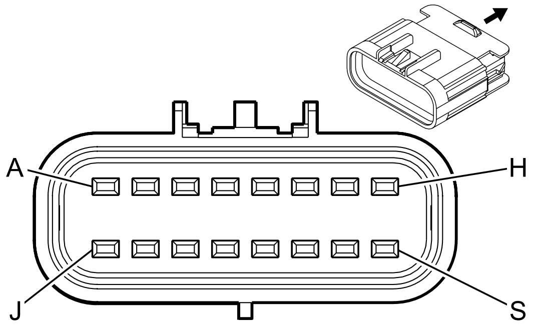
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0.75 | WH/L-GN | 1222 | II | — | 1 Shift Solenoid Valve Control | A | 0.75 | WH/L-GN | 1222 | III | — |
| B | 0.75 | YE/BK | 1223 | II | — | 2 Shift Solenoid Valve Control | B | 0.75 | YE/BK | 1223 | III | — |
| C | 0.75 | WH/BN | 2527 | II | — | Shift Solenoid Control 5 | C | 0.75 | WH/BN | 2527 | III | — |
| D | 0.75 | VT/GY | 1224 | II | — | Transmission Fluid Pressure Switch Signal | D | 0.75 | VT/GY | 1224 | III | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| D | 0.75 | | | | | Pressure Switch Signal Bit 1 | D | 0.75 | | | |
| E | 0.75 | WH/BN | 1226 | II | — | Transmission Fluid Pressure Switch Signal Bit 3 | E | 0.75 | WH/BN | 1226 | III | — |
| F | 0.75 | L-GN/VT | 1225 | II | — | Transmission Fluid Pressure Switch Signal Bit 2 | F | 0.75 | L-GN/VT | 1225 | III | — |
| G | 0.75 | BN/WH | 585 | II | — | Transmission Oil Temperature Sensor Signal | G | 0.75 | BN/WH | 585 | III | — |
| H | 0.75 | BK/BN | 586 | II | — | Transmission Oil Temperature Sensor Low Reference | H | 0.75 | BK/BN | 586 | III | — |
| J | 0.75 | GY | 6402 | II | — | Clutch C Control | J | 0.75 | GY | 6402 | III | — |
| K | 0.75 | L-GN/BK | 2529 | II | — | Transmission Fluid Pressure Switch Signal Bit 4 | K | 0.75 | L-GN/BK | 2529 | III | — |
| L | 0.75 | GY/BN | 6388 | II | — | Transmission High Side Driver 2 Signal | L | 0.75 | GY/BN | 6388 | III | — |
| M | 0.75 | BN | 6400 | II | — | Clutch A Control | M | 0.75 | BN | 6400 | III | — |
| N | 0.75 | L-GN/GY | 6387 | II | — | Transmission High Side Driver 1 Signal Driver | N | 0.75 | L-GN/GY | 6387 | III | — |
| P | 0.75 | WH | 4508 | II | — | Transmission Clutch G Control | P | 0.75 | WH | 4508 | III | — |
| R | 0.5 | WH/GY | 1786 | I | — | Transmission Park/Neutral Signal 1 | R | 0.5 | WH/GY | 1786 | III | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| S | 0.75 | D-BU | 6401 | II | — | Clutch B Control | S | 0.75 | D-BU | 6401 | III | — |
| T | 0.5 | WH/BK | 5983 | I | — | PRNDL C Signal | T | 0.5 | WH/BK | 5983 | III | — |
| U | 0.5 | GY/BN | 5982 | I | — | PRNDL B Signal | U | 0.5 | GY/BN | 5982 | III | — |
| V | 0.5 | VT/WH | 5981 | I | — | PRNDL A Signal | V | 0.5 | VT/WH | 5981 | III | — |
| W | 0.5 | GY/WH | 4168 | I | — | PRNDL P Signal | W | 0.5 | GY/WH | 4168 | III | — |

## X191 Engine Harness to Power Take-Off Jumper Harness (L5P+PTO)





### Connector Part Information

Harness Type: Engine

OEM Connector: 15326863

Service Connector: 19180282

Description: 16-Way F 150 GT Series, Sealed (BK)

### Connector Part Information

Harness Type: Engine

OEM Connector: 15326868

Service Connector: 15306364

Description: 16-Way M 150 Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575412 | J-35616-14 (GN) | J-38125-553 | 12191819 | Delphi 8 | E | 1 |
| II | 13575412 | J-35616-14 (GN) | J-38125-553 | Not Available | Not Available | Not Available | Not Available |
| III | 13575397 | J-35616-3 (GY) | J-38125-553 | 15326269 | Delphi 19 | E | 4 |

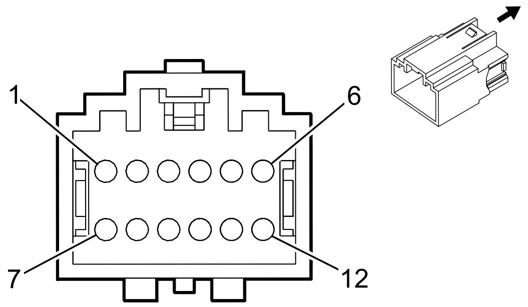
### *X191 Engine Harness to Power Take-Off Jumper Harness (L5P+PTO)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0.75 | BN/WH | 6085 | II | — | Power Take Off Remote Engine Start Switch Signal | A | 0.5 | BN/WH | 6085 | III | — |
| B | 0.75 | BN | 6381 | II | — | Power Take Off Relay | B | — | — | — | — | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | 0.75 | | | | | Engage Signal | B | — | | | | |
| C | — | — | — | — | — | Not Occupied | C | — | — | — | — | — |
| D | 0.75 | BK | 550 | II | — | Ground | D | — | — | — | — | — |
| E - F | — | — | — | — | — | Not Occupied | E - F | — | — | — | — | — |
| G | 0.75 | YE | 2522 | II | — | Power Take Off Status Signal | G | — | — | — | — | — |
| H | 0.5 | VT/D-BU | 2562 | I | — | Power Take Off Relay Coil Control | H | — | — | — | — | — |
| J | 0.5 | WH/L-GN | 6142 | I | — | Power Take Off Engine Shutdown Signal | J | 0.5 | BN/WH | 6085 | III | — |
| K | 0.75 | RD/VT | 2640 | II | — | Battery Positive Voltage | K | — | — | — | — | — |
| L - M | — | — | — | — | — | Not Occupied | L - M | — | — | — | — | — |
| N | 0.5 | D-BU/GY | 6089 | I | — | Power Take Off Remote Switch Set Signal 1 | N | — | — | — | — | — |
| P | — | — | — | — | — | Not Occupied | P | — | — | — | — | — |
| R | 0.5 | VT/WH | 239 | I | — | Run/Crank Ignition 1 Voltage | R | — | — | — | — | — |
| S | — | — | — | — | — | Not Occupied | S | — | — | — | — | — |

## X201 Steering Column Harness to Instrument Panel Harness (E29)

—



### Connector Part Information

Harness Type: Steering Column

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way F

### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13507705

Service Connector: 88988266

Description: 12-Way M 1.5 Series (L-GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | 13575818 | J-35616-3 (GY) | J-38125-553 | Not Available | Not Available | Not Available | Not Available |

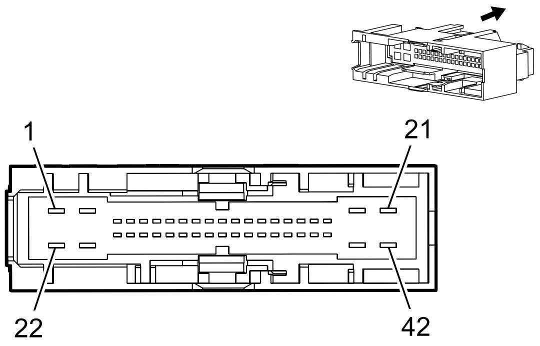
### *X201 Steering Column Harness to Instrument Panel Harness (E29)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.35 | BN | 6136 | I | — | Control | 1 | 0.35 | BN | 6136 | II | — |
| 2 | 0.35 | RD/YE | 3040 | I | — | Battery Positive Voltage | 2 | 0.35 | RD/YE | 3040 | II | — |
| 3 | 0.5 | D-BU/YE | 6105 | I | — | High Speed GMLAN Serial Data (+) 2 | 3 | 0.5 | D-BU/YE | 6105 | II | — |
| 4 | 0.5 | D-BU/YE | 6105 | I | — | High Speed GMLAN Serial Data (+) 2 | 4 | 0.5 | D-BU/YE | 6105 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.35 | L-GN/BN | 2087 | I | — | Combined Vehicle Inertial Sensor Supply Voltage | 5 | 0.35 | L-GN/BN | 2087 | II | — |
| 6 | 0.5 | BK/WH | 1851 | I | — | Signal Ground | 6 | 0.5 | BK/WH | 1851 | II | — |
| 7 | 0.35 | RD/D-BU | 540 | I | — | Battery Positive Voltage | 7 | 0.35 | RD/D-BU | 540 | II | — |
| 8 | 0.35 | L-GN/WH | 111 | I | — | Hazard Switch Signal | 8 | 0.35 | L-GN/WH | 111 | II | — |
| 9 | 0.5 | WH | 6106 | I | — | High Speed GMLAN Serial Data (-) 2 | 9 | 0.5 | WH | 6106 | II | — |
| 10 | 0.5 | WH | 6106 | I | — | High Speed GMLAN Serial Data (-) 2 | 10 | 0.5 | WH | 6106 | II | — |
| 12 | 0.5 | BK | 1050 | I | — | Ground | 12 | 0.5 | BK | 1050 | II | — |

# X201 Steering Column Harness to Instrument Panel Harness (-E29)

—



## Connector Part Information

Harness Type: Steering Column

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 42-Way F

## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 33155180

Service Connector: 13597187

Description: 42-Way M 0.64, 2.8 Series (GY)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | 13575823 | J-35616-5 (PU) | J-38125-11A | 7114-4110-02 | Yazaki 9 | E | C |
| III | 19301762 | J-35616-35 (VT) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| IV | 19301763 | J-35616-35 (VT) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |

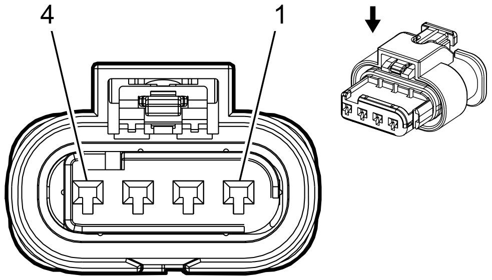
## *X201 Steering Column Harness to Instrument Panel Harness (-E29)*

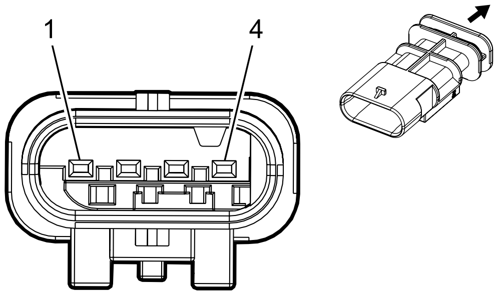
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 0.35 | RD/D-BU | 540 | I | — | Battery Positive Voltage | 4 | 0.35 | RD/D-BU | 540 | III | — |
| 9 | 0.35 | L-GN/BN | 2087 | I | — | Combined Vehicle Inertial Sensor Supply Voltage | 9 | 0.35 | L-GN/BN | 2087 | III | — |
| 10 | 0.5 | D-BU/YE | 6105 | I | — | High Speed GMLAN Serial Data (+) 2 | 10 | 0.5 | D-BU/YE | 6105 | IV | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 0.5 | D-BU/YE | 6105 | I | — | High Speed GMLAN Serial Data (+) 2 | 11 | 0.5 | D-BU/YE | 6105 | IV | — |
| 16 | 0.35 | L-GN/WH | 111 | I | — | Hazard Switch Signal | 16 | 0.35 | L-GN/WH | 111 | III | — |
| 17 | 0.35 | YE/WH | 816 | I | — | Brake Transmission Shift Interlock Solenoid Control | 17 | 0.35 | YE/WH | 816 | III | — |
| 20 | 0.5 | BK | 1050 | I | — | Ground | 20 | 0.5 | BK | 1050 | II | — |
| 25 | 0.35 | RD/YE | 3040 | I | — | Battery Positive Voltage | 25 | 0.35 | RD/YE | 3040 | III | — |
| 30 | 0.5 | L-GN/WH | 7527 | I | — | Local Interconnect Network Serial Data Bus 5 | 30 | 0.5 | L-GN/WH | 7527 | IV | — |
| 31 | 0.5 | WH | 6106 | I | — | High Speed GMLAN Serial Data (-) 2 | 31 | 0.5 | WH | 6106 | IV | — |
| 32 | 0.5 | WH | 6106 | I | — | High Speed GMLAN Serial Data (-) 2 | 32 | 0.5 | WH | 6106 | IV | — |
| 33 | 0.5 | L-GN/BK | 3894 | I | — | Local Interconnect Network Serial Data Bus 12 | 33 | 0.5 | L-GN/BK | 3894 | IV | — |
| 38 | 0.35 | BN | 6136 | I | — | Control | 38 | 0.35 | BN | 6136 | III | — |
| 41 | 0.5 | VT/WH | 1139 | I | — | Run/Crank Ignition 1 Voltage | 41 | 0.5 | VT/WH | 1139 | II | — |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | 0.5 | BK/WH | 1851 | I | — | Signal Ground | 42 | 0.5 | BK/WH | 1851 | II | — |

## X205 Instrument Panel Harness to Instrument Panel Extension Harness





### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13854531

Service Connector: 13586137

Description: 4-Way F 1.2 Series, Sealed (YE)

### Connector Part Information

Harness Type: Instrument Panel Extension

OEM Connector: 13854529

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way M 1.2 Series, Sealed (YE)

### *Terminal Part Information*

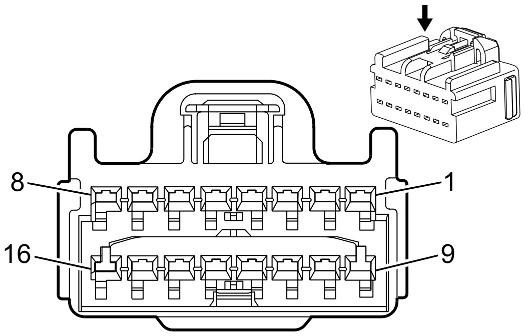
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-13 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

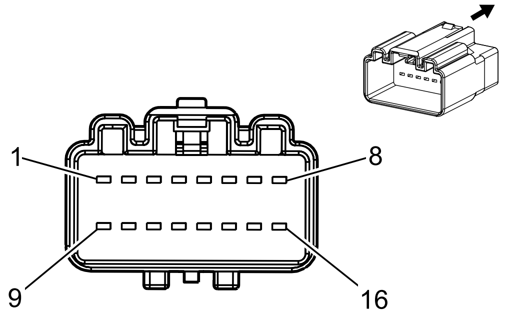
### *X205 Instrument Panel Harness to Instrument Panel Extension Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.35 | YE/OG | 3025 | I | — | Passenger IP Module Stage 1 High Control | 1 | 0.35 | YE/OG | 3025 | II | — |
| 2 | 0.35 | OG/WH | 3024 | I | — | Passenger IP Module Stage 1 Low Control | 2 | 0.35 | OG/WH | 3024 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.35 | GY/OG | 3027 | I | — | Passenger IP Module Stage 2 High Control | 3 | — | — | — | — | — |
| 4 | 0.35 | OG/VT | 3026 | I | — | Passenger IP Module Stage 2 Low Control | 4 | — | — | — | — | — |

## X206 Headliner Harness to Body Harness





### Connector Part Information

- Harness Type: Headliner
- OEM Connector: 10847013
- Service Connector: 89047090
- Description: 16-Way F 1.5 Kaizen Series (GN)

### Connector Part Information

- Harness Type: Body
- OEM Connector: 13507433
- Service Connector: 89047072
- Description: 16-Way M 1.5 Kaizen Series (GN)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13578891 | J-35616-2A (GY) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| II | 13575818 | J-35616-3 (GY) | J-38125-553 | Not Available | Not Available | Not Available | Not Available |
| III | 19119440 | J-35616-3 (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |

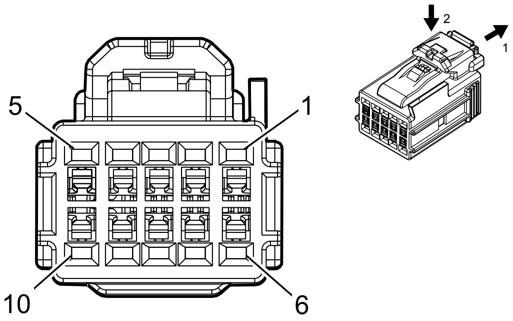
### *X206 Headliner Harness to Body Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | — | — | Not Occupied | 1 - 2 | — | — | — | — | — |
| 3 | 0.35 | L-GN/RD | 2308 | I | — | Passenger Air Bag Off Indicator Control | 3 | 0.35 | L-GN | 2308 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 0.35 | D-BU | 2307 | I | — | Passenger Air Bag On Indicator Control | 4 | 0.35 | D-BU | 2307 | II | — |
| 5 | 0.35 | VT/WH | 5234 | I | — | Passenger Seat Belt Indicator Control | 5 | 0.35 | VT/WH | 5234 | III | — |
| 6 | 0.5 | VT/GY | 1054 | I | — | Stop Lamp Control | 6 | 0.5 | VT/GY | 1054 | II | — |
| 7 - 9 | — | — | — | — | — | Not Occupied | 7 - 9 | — | — | — | — | — |
| 10 | 0.35 | L-GN/BK | 3008 | I | — | Noise Reduction Microphone 1 Low Reference | 10 | 0.35 | L-GN/BK | 3008 | II | — |
| 11 | 0.5<br>0.35 | GY<br>L-GN/WH | 157<br>3005 | I<br>I | E29<br>NKC/UQS | Interior Lamp Control<br>Noise Reduction Microphone 1 Signal | 11 | 0.5<br>0.35 | GY<br>L-GN/BN | 157<br>3005 | II<br>II | E29<br>NKC/UQS |
| 12 | 0.5<br>0.35 | WH/BN<br>D-BU/BK | 6815<br>3009 | I<br>I | E29<br>NKC | Inadvertent Power Control<br>Noise Reduction Microphone 2 Low Reference | 12 | 0.5<br>0.35 | WH/BN<br>D-BU/BK | 6815<br>3009 | II<br>II | E29<br>NKC |
| 13 | 0.35 | D-BU/YE | 3006 | I | — | Noise Reduction Microphone 2 Signal | 13 | 0.35 | D-BU/YE | 3006 | II | — |
| 14 | 0.35<br>0.35 | GY/D-BU<br>GY/BN | 156<br>3010 | I<br>I | E29<br>NKC | Courtesy Lamp Switch Signal<br>Noise Reduction Microphone 3 Low Reference | 14 | 0.35<br>0.35 | GY<br>GY/BN | 156<br>3010 | II<br>II | E29<br>NKC |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 0.35 | GY/D-BU | 3007 | I | — | Noise Reduction Microphone 3 Signal | 15 | 0.35 | GY/D-BU | 3007 | II | — |
| 16 | — | — | — | — | — | Not Occupied | 16 | — | — | — | — | — |

## X208 RH A Pillar Harness to HVAC Harness



—

### Connector Part Information

Harness Type: RH A Pillar

OEM Connector: 33174127

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F 1.2 Series (BK)

### Connector Part Information

Harness Type: HVAC

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way M

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-64B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

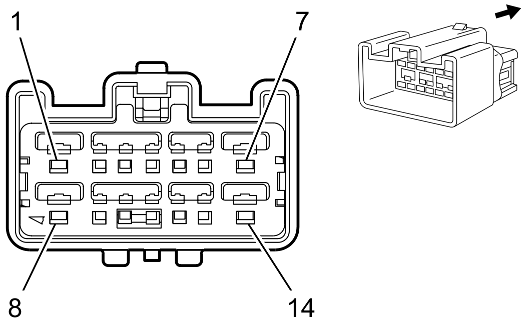
### *X208 RH A Pillar Harness to HVAC Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | — | — | — | — | — | Not Occupied | 1 | — | — | — | — | — |
| 2 | 0.35 | BK/D-BU | 7566 | I | — | Humidity/Windscreen Temp Sensor Low Reference | 2 | 0.35 | BK/D-BU | 7566 | II | — |
| 3 | 0.35 | GY/D-GN | 7565 | I | — | Windscreen Temp Sensor Signal | 3 | 0.35 | GY/D-GN | 7565 | II | — |
| 4 | 0.35 | GY/D-BU | 7564 | I | — | Humidity Sensor Signal | 4 | 0.35 | GY/D-BU | 7564 | II | — |
| 5 - 6 | — | — | — | — | — | Not Occupied | 5 - 6 | — | — | — | — | — |
| | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 7 | 0.35 | YE/D-BU | 3197 | I | — | Humidity Temperature Sensor Signal | 7 | 0.35 | YE/D-BU | 3197 | II | — |
| 8 | — | — | — | — | — | Not Occupied | 8 | — | — | — | — | — |
| 9 | 0.35 | YE/RD | 597 | I | — | 5V Reference | 9 | 0.35 | YE/RD | 597 | II | — |
| 10 | — | — | — | — | — | Not Occupied | 10 | — | — | — | — | — |

## X215 POA HVAC Harness to Instrument Panel Harness

—



### Connector Part Information

Harness Type: POA HVAC

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 14-Way F

### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 10846900

Service Connector: 88956523

Description: 14-Way M Hybrid Series (L-GY)

### *Terminal Part Information*

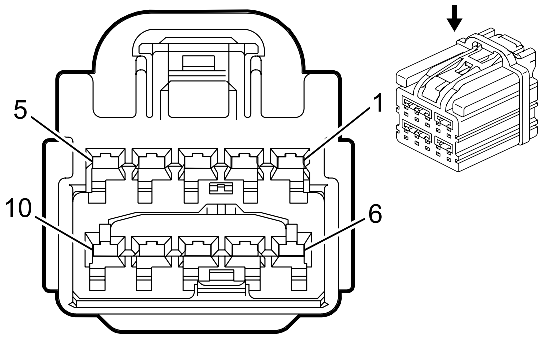
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | 13575818 | J-35616-3 (GY) | J-38125-553 | Not Available | Not Available | Not Available | Not Available |

### *X215 POA HVAC Harness to Instrument Panel Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0.35 | L-GN | 5060 | I | — | Low Speed GMLAN Serial Data | 2 | 0.35 | L-GN | 5060 | II | — |
| 3 | 0.35 | L-GN/YE | 7531 | I | — | Local Interconnect Network Serial Data Bus 9 | 3 | 0.35 | L-GN/YE | 7531 | II | — |
| 4 | 0.5 | RD/VT | 3340 | I | — | Battery Positive Voltage | 4 | 0.5 | RD/VT | 3340 | II | — |
| 5 | 0.5 | VT/GY | 539 | I | — | Run/Crank Ignition 1 Voltage | 5 | 0.5 | VT/GY | 539 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 9 | 0.5<br>0.35 | BK/WH<br>BK/WH | 1851<br>1851 | I<br>I | E29<br>-E29 | Signal Ground<br>Signal Ground | 9 | 0.5<br>0.35 | BK/WH<br>BK/WH | 1851<br>1851 | II<br>II | E29<br>-E29 |
| 10 | 0.35 | BK/YE | 1791 | I | — | Air Temperature Door Control Low Reference | 10 | 0.35 | BK/YE | 1791 | II | — |
| 11 | 0.35 | D-BU/WH | 734 | I | — | Inside Air Temperature Sensor Signal | 11 | 0.35 | D-BU/WH | 734 | II | — |
| 12 | 0.35 | GY | 590 | I | — | Solar Sensor Driver Signal | 12 | 0.35 | GY | 590 | II | — |
| 13 | 0.35 | YE/VT | 1783 | I | — | Twilight Sentinel Delay Signal | 13 | 0.35 | YE/VT | 1783 | II | — |

## X216 Body Harness to HVAC Harness



—

## Connector Part Information

Harness Type: Body

OEM Connector: 10847018

Service Connector: 22708788

Description: 10-Way F YESC Kaizen Series (L-GY)

## Connector Part Information

Harness Type: HVAC

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way M

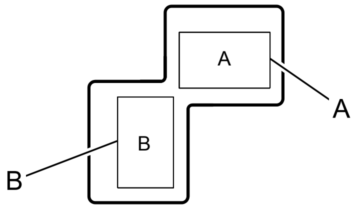
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19301767 | J-35616-2A (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X216 Body Harness to HVAC Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - 3 | — | — | — | — | — | Not Occupied | 1 - 3 | — | — | — | — | — |
| 4 | 0.35 | BN/VT | 193 | I | — | Rear Defog Relay Control | 4 | 0.35 | BN/VT | 193 | II | — |
| 5 | 0.5 | D-BU/BN | 7573 | I | — | Electric Variable Displacement Supply | 5 | 0.5 | D-BU/BN | 7573 | II | — |
| 6 | 0.5 | D-BU/YE | 7574 | I | — | Electric Variable Displacement Control | 6 | 0.5 | D-BU/YE | 7574 | II | — |
| 7 - 10 | — | — | — | — | — | Not Occupied | 7 - 10 | — | — | — | — | — |

## X217 Body Harness to HVAC Harness



—

### Connector Part Information

Harness Type: Body

OEM Connector: 10721337

Service Connector: 88953301

Description: 2-Way F 56 Series (BK)

### Connector Part Information

Harness Type: HVAC

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M

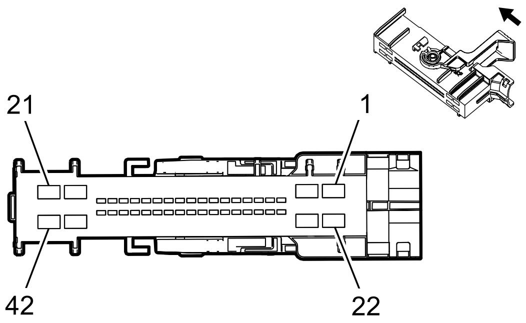
### *Terminal Part Information*

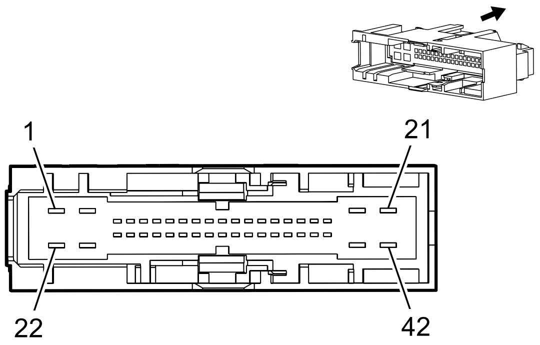
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-22 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X217 Body Harness to HVAC Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 4 | RD/VT | 542 | I | — | Battery Positive Voltage | A | 4 | RD/VT | 542 | II | — |
| B | 10 | RD/GY | 642 | I | — | Battery Positive Voltage | B | 10 | RD/GY | 642 | II | — |

# X225 Body Harness to Instrument Panel Harness (Extended Cab/Crew Cab)





## Connector Part Information

Harness Type: Body

OEM Connector: 33160247

Service Connector: 19301820

Description: 42-Way F 1.2, 2.8 Series (GY)

## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 33155179

Service Connector: 13597186

Description: 42-Way M 0.64, 2.8 Series (GY)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13580025 | J-35616-35 (VT) | J-38125-11A | 7116-4111-02 | Yazaki 9 | E | A |
| II | 19300649 | J-35616-64B (LT BU) | J-38125-553 | Not Available | Not Available | Not Available | Not Available |
| III | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| IV | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| V | 19301762 | J-35616-35 (VT) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| VI | 19301763 | J-35616-35 (VT) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| VII | 19329828 | J-35616-5 (PU) | J-38125-212 | 1326029-1 | Lear 17 | E | C |
| VIII | 19329828 | J-35616-5 (PU) | J-38125-212 | Not Available | Not Available | Not Available | Not Available |

## *X225 Body Harness to Instrument Panel Harness (Extended Cab/Crew Cab)*

| Pin | Size | Color | Circuit | Terminal Type | Option | Function | Pin | Size | Color | Circuit | Terminal Type | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

|  |  |  |  | ID |  |  |  |  |  |  | ID |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | YE/GY | 1956 | I | — | Left Front Tweeter Speaker (-) Low Reference | 1 | 0.75 | YE/GY | 1956 | VIII | — |
| 2 | 1.5 | BK | 1850 | IV | — | Ground | 2 | 0.75 | BK | 1850 | VIII | — |
| 3 | — | — | — | — | — | High Speed GMLAN Serial Data (-) 2 | 3 | 0.5 | WH | 6106 | VI | — |
| 4 | 0.5 | WH/BN | 6815 | II | — | Inadvertent Power Control | 4 | 0.5 | WH/BN | 6815 | VI | — |
| 5 | 0.35 | GY/WH | 3272 | II | — | Remote Function Actuator Control | 5 | 0.35 | GY/WH | 3272 | V | — |
| 6 | 0.35 | D-BU/WH | 3275 | II | — | Remote Function Actuator Receive Signal | 6 | 0.35 | D-BU/WH | 3275 | V | — |
| 7 | 0.35 | L-GN/BN | 507 | II | — | Wait To Start Indicator Control | 7 | 0.35 | L-GN/BN | 507 | V | — |
| 8 | 0.5<br>0.5 | L-GN<br>GY/VT | 3998<br>3998 | II<br>II | UQA/UQG/UQH/UQS<br>-UQA/UQG/UQH/UQS | MOST Serial Data (+)<br>MOST Serial Data (+) | 8 | 0.5 | GY/VT | 3998 | VI | — |
| 9 | 0.35 | D-BU/YE | 6844 | II | — | ABS/TCS Hill Descent Control Switch Signal | 9 | 0.35 | D-BU/YE | 6844 | V | — |
| 10 | — | — | — | — | — | Low Washer Fluid Indicator Control | 10 | 0.35 | VT | 185 | V | — |

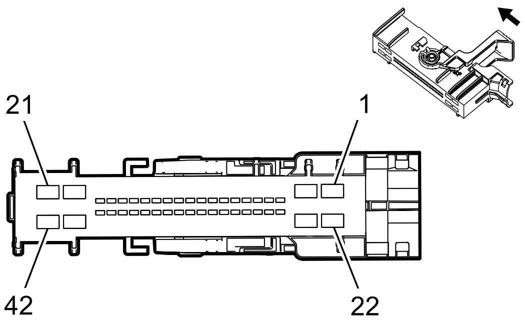
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 0.5 | WH/L-GN | 3997 | II | — | MOST Serial Data (-) | 11 | 0.5 | WH/L-GN | 3997 | VI | — |
| 12 | 0.5 | BN/D-BU | 118 | II | — | Left Front Speaker Signal (-) 1 | 12 | 0.5 | BN/D-BU | 118 | VI | — |
| 13 | — | — | — | — | — | Park Brake Switch Signal | 13 | 0.5 | D-BU/VT | 1134 | VI | — |
| 14 | 0.5 | L-GN | 199 | II | — | Left Rear Speaker Control (+) | 14 | 0.5 | L-GN | 199 | VI | — |
| 15 | — | — | — | — | — | High Speed GMLAN Serial Data (+) 1 | 15 | 0.5 | D-BU | 2500 | VI | — |
| 16 | — | — | — | — | — | High Speed GMLAN Serial Data (-) 1 | 16 | 0.5 | WH | 2501 | VI | — |
| 17 | 0.35 | D-BU/GY | 636 | II | — | Outside Ambient Air Temperature Sensor Signal | 17 | 0.35 | D-BU/GY | 636 | V | — |
| 18 | — | — | — | — | — | Stop Lamp Switch Signal | 18 | 0.35 | WH/L-GN | 526 | V | — |
| 19 | 0.35 | BK/D-BU | 61 | II | — | Outside Ambient Temperature Sensor Low Reference | 19 | 0.35 | BK/D-BU | 61 | V | — |
| 20 | 0.5<br>0.75 | BN/D-BU<br>BN/D-BU | 118<br>118 | III<br>III | UQ3<br>UQ3/UQ5 | Left Front Speaker Signal (-) 1<br>Left Front Speaker Signal (-) 1 | 20 | 0.75 | BN/D-BU | 118 | VIII | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 21 | — | — | — | — | — | Driver Door Lock Switch Unlock Signal | 21 | 0.35 | BN/WH | 781 | VII | — |
| 22 | 0.75 | YE/D-BU | 1856 | I | — | Left Front Tweeter Speaker Control (+) | 22 | 0.75 | YE/D-BU | 1856 | VIII | — |
| 23 | 0.35 | L-GN | 4512 | III | — | Wireless Charging System Charge Indicator Control | 23 | 0.35 | L-GN | 4512 | VIII | — |
| 24 | 0.35 | L-GN/WH | 3438 | II | — | Exhaust Brake Switch Signal | 24 | 0.35 | L-GN/WH | 3438 | V | — |
| 25 | 0.35 | BN/WH | 419 | II | — | Check Engine Indicator Control | 25 | 0.35 | BN/WH | 419 | V | — |
| 26 | 0.35 | YE/L-GN | 3274 | II | — | Remote Function Actuator Transmit Signal | 26 | 0.35 | YE/L-GN | 3274 | V | — |
| 27 | 0.35 | GY | 3273 | II | — | Remote Function Actuator Low Reference | 27 | 0.35 | GY | 3273 | V | — |
| 28 | 0.5 | BK | 1850 | II | — | Ground | 28 | 0.5 | BK | 1850 | VI | — |
| 29 | 0.5<br>0.5 | YE<br>WH/L-GN | 3997<br>3997 | II<br>II | UQA/UQG/UQH/UQS<br>- UQA/UQG/UQH/UQS | MOST Serial Data (-)<br>MOST Serial Data (-) | 29 | 0.5 | WH/L-GN | 3997 | VI | — |
| 30 | 0.35 | L-GN/WH | 488 | II | — | Power Take Off Control Switch | 30 | 0.35 | L-GN/WH | 488 | V | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 31 | 0.35 | BN/L-GN | 4311 | II | — | Power Take Off Enable In Cab Switch Normally Closed Signal | 31 | 0.35 | BN/L-GN | 4311 | V | — |
| 32 | 0.5 | GY/VT | 3998 | II | — | MOST Serial Data (+) | 32 | 0.5 | GY/VT | 3998 | VI | — |
| 33 | 0.5 | D-BU | 201 | II | — | Left Front Speaker Control (+) 1 | 33 | 0.5 | D-BU | 201 | VI | — |
| 34 | 0.5 | D-BU/YE | 68 | II | — | Low Coolant Level Indicator Control | 34 | 0.5 | D-BU/YE | 68 | VI | — |
| 35 | 0.5 | L-GN/BK | 116 | II | — | Left Rear Speaker Signal (-) | 35 | 0.5 | L-GN/BK | 116 | VI | — |
| 36 | 0.5 | L-GN/YE | 2081 | II | — | Exhaust Brake Switch Control | 36 | 0.5 | L-GN/YE | 2081 | VI | — |
| 37 | 0.35 | VT/YE | 43 | II | — | Accessory Ignition Voltage | 37 | 0.35 | VT/YE | 43 | V | — |
| 38 | 0.35 | L-GN/BN | 2087 | II | — | Combined Vehicle Inertial Sensor Supply Voltage | 38 | 0.35 | L-GN/BN | 2087 | V | — |
| 39 | — | — | — | — | — | Not Occupied | 39 | — | — | — | — | — |
| 40 | 0.5 | L-GN/GY | 6135 | II | — | Local Interconnect Network Serial Data Bus 4 | 40 | 0.5 | L-GN/GY | 6135 | VI | — |
| 41 | 0.5<br>0.75 | D-BU<br>D-BU | 201<br>201 | III<br>III | UQ3<br>UQ3/UQ5 | Left Front Speaker Control (+) 1<br>Left Front Speaker Control (+) 1 | 41 | 0.75 | D-BU | 201 | VIII | — |
| | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | 0.35 | D-BU/YE | 6844 | III | — | ABS/TCS Hill Descent Control Switch Signal | 42 | 0.35 | D-BU/YE | 6844 | VIII | — |

## X225 Body Harness to Instrument Panel Harness (Regular Cab)



—

### Connector Part Information

Harness Type: Body

OEM Connector: 33160247

Service Connector: 19301820

Description: 42-Way F 1.2, 2.8 Series (GY)

### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 42-Way M

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13580025 | J-35616-35 (VT) | J-38125-11A | 7116-4111-02 | Yazaki 9 | E | A |
| II | 19300649 | J-35616-64B (LT BU) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| III | 19300649 | J-35616-64B (LT BU) | J-38125-553 | Not Available | Not Available | Not Available | Not Available |
| IV | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| V | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| VI | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X225 Body Harness to Instrument Panel Harness (Regular Cab)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | BK | 2550 | I | — | Ground | 1 | 0.75 | BK | 2550 | VI | — |
| 2 | 1.5 | BK | 1850 | V | — | Ground | 2 | 1.5 | BK | 1850 | VI | — |
| 3 | 0.5 | WH | 6106 | III | — | High Speed GMLAN Serial Data (-) 2 | 3 | 0.5 | WH | 6106 | VI | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | | | | | Serial Data (-) 2 | 3 | 0.5 | | | |
| 4 | 0.5 | D-BU/YE | 6105 | III | — | High Speed GMLAN Serial Data (+) 2 | 4 | 0.5 | D-BU/YE | 6105 | VI | — |
| 5 | 0.35 | GY/WH | 3272 | III | — | Remote Function Actuator Control | 5 | 0.35 | GY/WH | 3272 | VI | — |
| 6 | 0.35 | D-BU/WH | 3275 | III | — | Remote Function Actuator Receive Signal | 6 | 0.35 | D-BU/WH | 3275 | VI | — |
| 7 | 0.35<br>0.35 | L-GN/BN<br>BK/L-GN | 507<br>552 | III<br>III | E29<br>L5P | Wait To Start Indicator Control<br>Sensor Low Reference | 7 | 0.35<br>0.35 | L-GN/BN<br>BK/L-GN | 507<br>552 | VI<br>VI | E29<br>L5P |
| 8 | 0.5 | GY/VT | 3998 | III | — | MOST Serial Data (+) | 8 | 0.5 | GY/VT | 3998 | VI | — |
| 9 | 0.5 | RD/WH | 961 | III | — | — | 9 | 0.5 | RD/WH | 961 | VI | — |
| 10 | 0.35 | VT | 185 | III | — | Low Washer Fluid Indicator Control | 10 | 0.35 | VT | 185 | VI | — |
| 11 | 0.5 | WH/L-GN | 3997 | III | — | MOST Serial Data (-) | 11 | 0.5 | WH/L-GN | 3997 | VI | — |
| 12 | 0.5 | BN/D-BU | 118 | III | — | Left Front Speaker Signal (-) 1 | 12 | 0.5 | BN/D-BU | 118 | VI | — |
| 13 | 1 | D-BU/VT | 1134 | II | — | Park Brake Switch Signal | 13 | 1 | D-BU/VT | 1134 | VI | — |

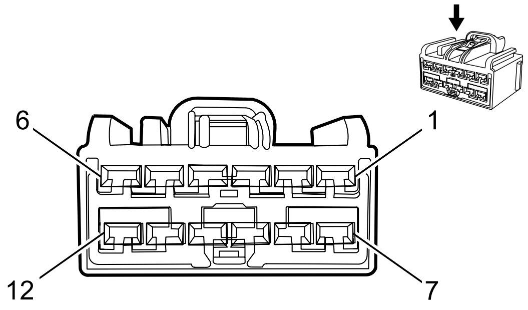
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 0.5 | L-GN | 199 | III | — | Left Rear Speaker Control (+) | 14 | 0.5 | L-GN | 199 | VI | — |
| 15 | 0.5 | D-BU | 2500 | III | — | High Speed GMLAN Serial Data (+) 1 | 15 | 0.5 | D-BU | 2500 | VI | — |
| 16 | 0.5 | WH | 2501 | III | — | High Speed GMLAN Serial Data (-) 1 | 16 | 0.5 | WH | 2501 | VI | — |
| 17 | 0.35 | D-BU/GY | 636 | III | — | Outside Ambient Air Temperature Sensor Signal | 17 | 0.35 | D-BU/GY | 636 | VI | — |
| 18 | 0.35 | WH/L-GN | 526 | III | — | Stop Lamp Switch Signal | 18 | 0.35 | WH/L-GN | 526 | VI | — |
| 19 | 0.35 | BK/D-BU | 61 | III | — | Outside Ambient Temperature Sensor Low Reference | 19 | 0.35 | BK/D-BU | 61 | VI | — |
| 20 | 0.5<br>0.75 | BN/D-BU<br>BN/D-BU | 118<br>118 | IV<br>IV | UQ3<br>UQ3/UQ5 | Left Front Speaker Signal (-) 1<br>Left Front Speaker Signal (-) 1 | 20 | 0.5<br>0.75 | BN/D-BU<br>BN/D-BU | 118<br>118 | VI<br>VI | UQ3<br>UQ3/UQ5 |
| 21 | 0.35 | BN/WH | 781 | IV | — | Driver Door Lock Switch Unlock Signal | 21 | 0.35 | BN/WH | 781 | VI | — |
| 22 | 0.35 | BN/YE | 780 | IV | — | Driver Door Lock Switch Lock Signal | 22 | 0.35 | BN/YE | 780 | VI | — |
| 23 | 0.5 | WH/D-BU | 3691 | IV | — | Trailer Brake Apply Signal | 23 | 0.5 | WH/D-BU | 3691 | VI | — |

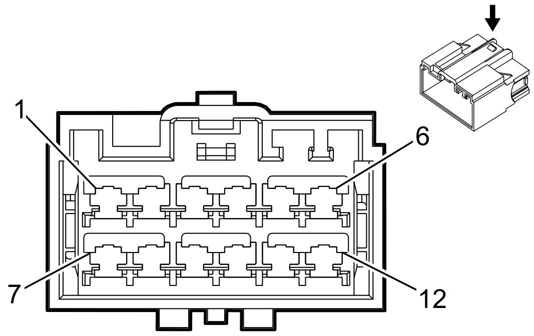
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 0.35 | L-GN/WH | 3438 | III | — | Exhaust Brake Switch Signal | 24 | 0.35 | L-GN/WH | 3438 | VI | — |
| 25 | 0.35 | BN/WH | 419 | III | — | Check Engine Indicator Control | 25 | 0.35 | BN/WH | 419 | VI | — |
| 26 | 0.35 | YE/L-GN | 3274 | III | — | Remote Function Actuator Transmit Signal | 26 | 0.35 | YE/L-GN | 3274 | VI | — |
| 27 | 0.35 | GY | 3273 | III | — | Remote Function Actuator Low Reference | 27 | 0.35 | GY | 3273 | VI | — |
| 28 | 0.5 | BK | 1850 | III | — | Ground | 28 | 0.5 | BK | 1850 | VI | — |
| 29 | 0.5 | WH/L-GN | 3997 | III | — | MOST Serial Data (-) | 29 | 0.5 | WH/L-GN | 3997 | VI | — |
| 30 | 0.5<br>0.35 | L-GN/GY<br>L-GN/WH | 963<br>488 | III<br>III | E29<br>PTO | —<br>Power Take Off Control Switch | 30 | 0.5<br>0.35 | L-GN/GY<br>L-GN/WH | 963<br>488 | VI<br>VI | E29<br>PTO |
| 31 | 0.5<br>0.35 | WH/D-BU<br>BN/L-GN | 964<br>4311 | III<br>III | E29<br>PTO | —<br>Power Take Off Enable In Cab Switch Normally Closed Signal | 31 | 0.5<br>0.35 | WH/D-BU<br>BN/L-GN | 964<br>4311 | VI<br>VI | E29<br>PTO |
| 32 | 0.5 | GY/VT | 3998 | III | — | MOST Serial Data (+) | 32 | 0.5 | GY/VT | 3998 | VI | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 33 | 0.5 | D-BU | 201 | III | — | Left Front Speaker Control (+) 1 | 33 | 0.5 | D-BU | 201 | VI | — |
| 34 | 0.5 | D-BU/YE | 68 | III | — | Low Coolant Level Indicator Control | 34 | 0.5 | D-BU/YE | 68 | VI | — |
| 35 | 0.5 | L-GN/BK | 116 | III | — | Left Rear Speaker Signal (-) | 35 | 0.5 | L-GN/BK | 116 | VI | — |
| 36 | 0.5<br>0.5 | D-BU/YE<br>L-GN/YE | 6105<br>2081 | III<br>III | E29<br>K40 | High Speed GMLAN Serial Data (+) 2<br>Exhaust Brake Switch Control | 36 | 0.5<br>0.5 | D-BU/YE<br>L-GN/YE | 6105<br>2081 | VI<br>VI | E29<br>K40 |
| 37 | 0.5 | WH | 6106 | III | — | High Speed GMLAN Serial Data (-) 2 | 37 | 0.5 | WH | 6106 | VI | — |
| 38 | 0.35 | L-GN/BN | 2087 | III | — | Combined Vehicle Inertial Sensor Supply Voltage | 38 | 0.35 | L-GN/BN | 2087 | VI | — |
| 39 | 0.5 | YE/WH | 962 | III | — | — | 39 | 0.5 | YE/WH | 962 | VI | — |
| 40 | 0.35 | GY/RD | 598 | III | — | 5V Reference | 40 | 0.35 | GY/RD | 598 | VI | — |
| 41 | 0.5<br>0.75 | D-BU<br>D-BU | 201<br>201 | IV<br>IV | UQ3<br>UQ3/UQ5 | Left Front Speaker Control (+) 1<br>Left Front Speaker Control (+) 1 | 41 | 0.5<br>0.75 | D-BU<br>D-BU | 201<br>201 | VI<br>VI | UQ3<br>UQ3/UQ5 |
|  |  |  |  |  |  |  |  |  |  |  |  |  |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 | 2.5 | BK | 1050 | IV | E29 | Ground | 42 | 2.5 | BK | 1050 | VI | E29 |
| | 0.35 | D-BU/YE | 6844 | IV | JHD | ABS/TCS Hill Descent Control Switch Signal | | 0.35 | D-BU/YE | 6844 | VI | JHD |

## X241 Instrument Panel Harness to Instrument Panel Extension Harness





### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 10846814

Service Connector: 13580444

Description: 12-Way F 2.8 Kaizen Series (L-GY)

### Connector Part Information

Harness Type: Instrument Panel Extension

OEM Connector: 10846810

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way M (L-GY)

### *Terminal Part Information*

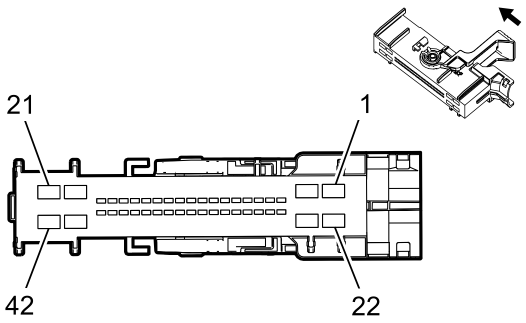
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13575836 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| II | 13575839 | J-35616-35 (VT) | J-38125-11A | 7116-4112-02 | Yazaki 9 | C | D |
| III | 13575839 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| IV | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

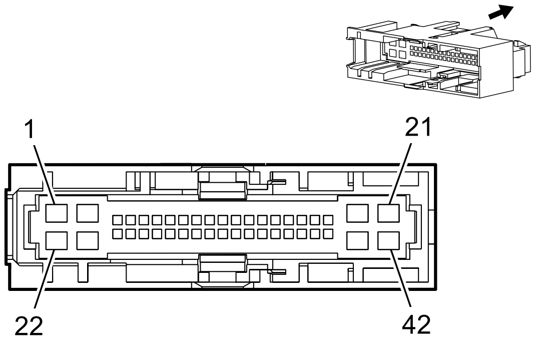
### *X241 Instrument Panel Harness to Instrument Panel Extension Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | — | — | — | — | — | Not Occupied | 1 | — | — | — | — | — |
| 2 | 1.5 | BK | 5683 | III | — | 120 V AC Phase A | 2 | 1.5 | BK | 5683 | IV | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 - 5 | — | — | — | — | — | Not Occupied | 3 - 5 | — | — | — | — | — |
| 6 | 2.5 | RD/GY | 4140 | II | — | Battery Positive Voltage | 6 | 2.5 | RD/GY | 4140 | IV | — |
| 7 | 1.5 | RD | 5684 | III | — | 120 V AC Phase B | 7 | 1.5 | RD | 5684 | IV | — |
| 8 - 9 | — | — | — | — | — | Not Occupied | 8 - 9 | — | — | — | — | — |
| 10 | 0.5 | BARE | 514 | I | — | Low Reference | 10 | 0.35 | BARE | 514 | IV | — |
| 11 | 2.5 | BK | 1050 | II | — | Ground | 11 | 2.5 | BK | 1050 | IV | — |
| 12 | 0.35 | D-BU/BN | 6807 | I | — | DC To AC Inverter Control | 12 | 0.35 | D-BU/BN | 6807 | IV | — |

## X275 Instrument Panel Harness to Body Harness





### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 33160245

Service Connector: 19332682

Description: 42-Way F 1.2, 2.8 Series (YE)

### Connector Part Information

Harness Type: Body

OEM Connector: 33155177

Service Connector: 13597184

Description: 42-Way M 0.64, 2.8 Series (YE)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13582232 | J-35616-64B (LT BU) | J-38125-12A | Not Available | Not Available | Not Available | Not Available |
| II | 19300649 | J-35616-64B (LT BU) | J-38125-553 | Not Available | Not Available | Not Available | Not Available |
| III | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| IV | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| V | 13575823 | J-35616-5 (PU) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| VI | 13575824 | J-35616-5 (PU) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| VII | 19301762 | J-35616-35 (VT) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| VIII | 19301763 | J-35616-35 (VT) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| IX | 19329828 | J-35616-5 (PU) | J-38125-212 | Not Available | Not Available | Not Available | Not Available |
| X | 19329836 | J-35616-65B (LT BU) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |

### X275 Instrument Panel Harness to Body Harness

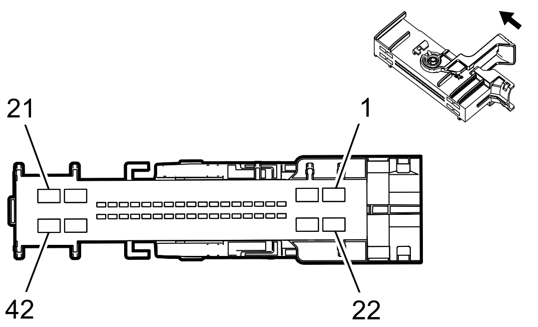
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | VT/BN | 1952 | III | — | Right Front Tweeter Speaker (-) Low Reference | 1 | 0.75 | VT/BN | 1952 | IX | — |
| 2 | 1.5 | VT/YE | 143 | IV | — | Accessory Ignition Voltage | 2 | 1.5 | VT/YE | 143 | VI | — |
| 3 | 0.35 | D-BU | 2060 | II | — | Auxiliary Detection Signal | 3 | 0.5 | D-BU | 2060 | VIII | — |
| 4 | 0.5 | BARE | 5842 | II | — | Auxiliary Audio Screen 2 | 4 | 0.5 | BARE | 5842 | VIII | — |
| 5 | 0.35 | VT | 5843 | II | — | Auxiliary Audio Common Signal | 5 | 0.5 | VT | 5843 | VIII | — |
| 6 | 0.35 | GY | 5839 | II | — | Left Auxiliary Audio Signal 2 | 6 | 0.5 | GY | 5839 | VIII | — |
| 7 | 0.35 | L-GN | 5841 | II | — | Right Auxiliary Audio Signal 2 | 7 | 0.5 | L-GN | 5841 | VIII | — |
| 8 | 0.35 | GY/YE | 6972 | II | — | Camera Signal 2 + | 8 | 0.35 | GY/YE | 6972 | VII | — |
| 9 | 0.35 | WH/D-BU | 6973 | II | — | Camera Signal 2 | 9 | 0.35 | WH/D-BU | 6973 | VII | — |
| 10 | 0.35 | L-GN/WH | 24 | II | — | Backup Lamp Control | 10 | 0.35 | L-GN/WH | 24 | VII | — |

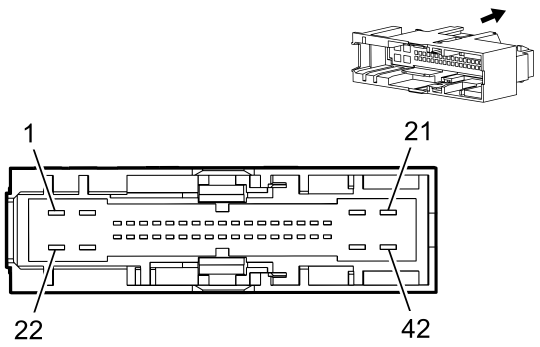
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 0.35 | WH/VT | 3999 | II | — | MOST Control | 11 | 0.35 | WH/VT | 3999 | VII | — |
| 12 | 0.5 | YE/BK | 117 | II | — | Right Front Speaker Signal (-) 1 | 12 | 0.5 | YE/BK | 117 | VIII | — |
| 13 | 0.5 | BN/WH | 1429 | II | — | Standing Lamp Relay Control | 13 | 0.5 | BN/WH | 1429 | VIII | — |
| 14 | 0.5 | WH | 46 | II | — | Right Rear Speaker Control (+) | 14 | 0.5 | WH | 46 | VIII | — |
| 15 | 0.35 | YE/OG | 3025 | I | — | Passenger IP Module Stage 1 High Control | 15 | 0.35 | YE/OG | 3025 | X | — |
| 16 | 0.35 | OG/WH | 3024 | I | — | Passenger IP Module Stage 1 Low Control | 16 | 0.35 | OG/WH | 3024 | X | — |
| 17 | 0.35 | GY/OG | 3027 | I | — | Passenger IP Module Stage 2 High Control | 17 | 0.35 | GY/OG | 3027 | X | — |
| 18 | 0.35 | OG/VT | 3026 | I | — | Passenger IP Module Stage 2 Low Control | 18 | 0.35 | OG/VT | 3026 | X | — |
| 19 | — | — | — | — | — | Not Occupied | 19 | — | — | — | — | — |
| 20 | 0.75 | YE/BK | 117 | III | — | Right Front Speaker Signal (-) 1<br>Right Front Speaker Signal (-) 1 | 20 | 0.5<br>0.75 | YE/BK<br>YE/BK | 117<br>117 | V<br>V | UQ3<br>UQ3/UQ5 |
| 21 | 1.5 | VT/YE | 243 | IV | — | Accessory Ignition Voltage | 21 | 1.5 | VT/YE | 243 | VI | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 22 | 0.75 | BN/L-GN | 1852 | III | — | Right Front Tweeter Speaker Control (+) | 22 | 0.75 | BN/L-GN | 1852 | IX | — |
| 23 | 0.35<br>0.5 | WH/D-BU<br>WH/D-BU | 5986<br>5986 | III<br>III | IO3<br>IO5/IO6+UE1/UHX | Serial Data Communication Enable<br>Serial Data Communication Enable | 23 | 0.5 | WH/D-BU | 5986 | IX | — |
| 24 | 0.35 | GY/VT | 755 | II | — | RAP Relay Coil Control | 24 | 0.35 | GY/VT | 755 | VII | — |
| 25 | 0.5 | L-GN | 5060 | II | — | Low Speed GMLAN Serial Data | 25 | 0.5 | L-GN | 5060 | VIII | — |
| 26 - 28 | — | — | — | — | — | Not Occupied | 26 - 28 | — | — | — | — | — |
| 29 | 0.35 | BARE | 6974 | II | — | Camera Low Reference | 29 | 0.35 | BARE | 6974 | VII | — |
| 30 | 0.35 | YE | 6812 | II | — | Out of Park Signal | 30 | 0.35 | YE | 6812 | VII | — |
| 31 | — | — | — | — | — | Not Occupied | 31 | — | — | — | — | — |
| 32 | 0.5 | GY/L-GN | 1102 | II | — | Low Speed GMLAN Serial Data #2 | 32 | 0.5 | GY/L-GN | 1102 | VIII | — |
| 33 | 0.5 | YE | 200 | II | — | Right Front Speaker Control (+) 1 | 33 | 0.5 | YE | 200 | VIII | — |
| 34 | — | — | — | — | — | Not Occupied | 34 | — | — | — | — | — |
| 35 | 0.5 | D-BU/BK | 115 | II | — | Right Rear Speaker Signal (-) | 35 | 0.5 | D-BU/BK | 115 | VIII | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 36 | 0.35 | D-BU/OG | 7328 | II | — | Passenger IP Module Disable Switch Low Reference | 36 | 0.35 | D-BU/OG | 7328 | VII | — |
| 37 | 0.35 | VT/OG | 371 | II | — | Passenger IP Module Disable Switch Signal | 37 | 0.35 | VT/OG | 371 | VII | — |
| 38 - 40 | — | — | — | — | — | Not Occupied | 38 - 40 | — | — | — | — | — |
| 41 | 0.75 | YE | 200 | III | — | Right Front Speaker Control (+) 1<br>Right Front Speaker Control (+) 1 | 41 | 0.5<br>0.75 | YE<br>YE | 200<br>200 | V<br>V | UQ3<br>UQ3/UQ5 |
| 42 | — | — | — | — | — | Not Occupied | 42 | — | — | — | — | — |

## X300 Instrument Panel Harness to Floor Console Harness





### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 33160247

Service Connector: 19301820

Description: 42-Way F 1.2, 2.8 Series (GY)

### Connector Part Information

Harness Type: Floor Console

OEM Connector: 33155180

Service Connector: Service by Harness - See Part Catalog

Description: 42-Way M 0.64, 2.8 Series (GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19300649 | J-35616-64B (LT BU) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| II | 19300649 | J-35616-64B (LT BU) | J-38125-553 | Not Available | Not Available | Not Available | Not Available |
| III | 19301761 | J-35616-35 (VT) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| IV | 19301761 | J-35616-35 (VT) | J-38125-557 | Not Available | Not Available | Not Available | Not Available |
| V | Not Required | J-35616-18 (BK) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| VI | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X300 Instrument Panel Harness to Floor Console Harness*

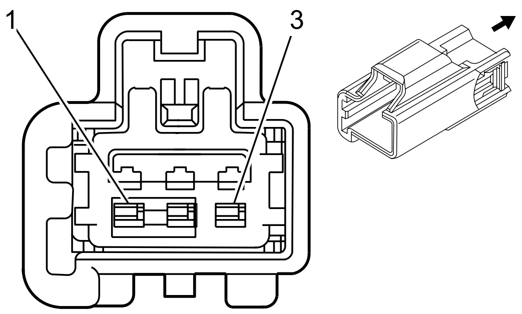
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | VT/YE | 243 | IV | — | Accessory Ignition | | | VT/YE | 243 | VI | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.5 | | | | | Voltage | 1 | 1.5 | | | | |
| 2 | — | — | — | — | — | Accessory Ignition Voltage | 2 | 1.5 | VT/YE | 143 | VI | — |
| 3 | — | — | — | — | — | Not Occupied | 3 | — | — | — | — | — |
| 4 | 0.35 | D-BU | 2060 | II | — | Auxiliary Detection Signal | 4 | 0.35 | D-BU | 2060 | V | — |
| 5 | 0.35 | BK | 2550 | II | — | Ground<br>Ground | 5 | 0.35 | BK | 2550 | V | — |
| 6 | — | — | — | — | — | Not Occupied | 6 | — | — | — | — | — |
| 7 | 0.35 | VT/YE | 43 | II | — | Accessory Ignition Voltage | 7 | 0.35 | VT/YE | 43 | V | — |
| 8 - 12 | — | — | — | — | — | Not Occupied | 8 - 12 | — | — | — | — | — |
| 13 | 0.5 | BARE | 5842 | II | — | Auxiliary Audio Screen 2 | 13 | 0.5 | BARE | 5842 | V | — |
| 14 | 0.35 | VT | 5843 | II | — | Auxiliary Audio Common Signal | 14 | 0.35 | VT | 5843 | V | — |
| 15 | — | — | — | — | — | Not Occupied | 15 | — | — | — | — | — |
| 16 | 0.35 | L-GN/WH | 3355 | II | — | Left Rear Seat Audio Headphone Signal | 16 | 0.35 | L-GN/WH | 3355 | V | — |
| 17 | 0.5 | BARE | 3354 | II | — | Rear Seat Audio Headphone Low Reference | 17 | 0.5 | BARE | 3354 | V | — |
| 18 - 22 | — | — | — | — | — | Not Occupied | 18 - 22 | — | — | — | — | — |
| 23 | 2.5 | BK | 1050 | IV | — | Ground | 23 | 2.5 | BK | 1050 | VI | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 23 | 2.5 | | | | | | 23 | 2.5 | | | | |
| 24 | 0.75 | RD/VT | 340 | I | — | Battery Positive Voltage | 24 | 0.75 | RD/VT | 340 | V | — |
| 25 - 27 | — | — | — | — | — | Not Occupied | 25 - 27 | — | — | — | — | — |
| 28 | 0.5 | WH/BN | 6815 | II | — | Inadvertent Power Control | 28 | 0.5 | WH/BN | 6815 | V | — |
| 29 | 0.35 | L-GN | 4512 | II | — | Wireless Charging System Charge Indicator Control | 29 | 0.35 | L-GN | 4512 | V | — |
| 30 - 33 | — | — | — | — | — | Not Occupied | 30 - 33 | — | — | — | — | — |
| 34 | 0.35 | L-GN | 5841 | II | — | Right Auxiliary Audio Signal 2 | 34 | 0.35 | L-GN | 5841 | V | — |
| 35 | 0.35 | GY | 5839 | II | — | Left Auxiliary Audio Signal 2 | 35 | 0.35 | GY | 5839 | V | — |
| 36 | — | — | — | — | — | Not Occupied | 36 | — | — | — | — | — |
| 37 | 0.35 | BN/GY | 3357 | II | — | Right Rear Seat Audio Headphone Signal | 37 | 0.35 | BN/GY | 3357 | V | — |
| 38 | 0.35 | D-BU/VT | 3356 | II | — | Rear Seat Audio Headphone Common Signal | 38 | 0.35 | D-BU/VT | 3356 | V | — |
| 39 - 41 | — | — | — | — | — | Not Occupied | 39 - 41 | — | — | — | — | — |
| 42 | 0.75 | RD/VT | 340 | III | — | Battery Positive Voltage | 42 | 0.75 | RD/VT | 340 | VI | — |

## X302 Power Mat Jumper Harness to Floor Console Harness

—



### Connector Part Information

Harness Type: Power Mat Jumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way F

### Connector Part Information

Harness Type: Floor Console

OEM Connector: 10846803

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way M 1.5 YESC Kaizen Series (L-GY)

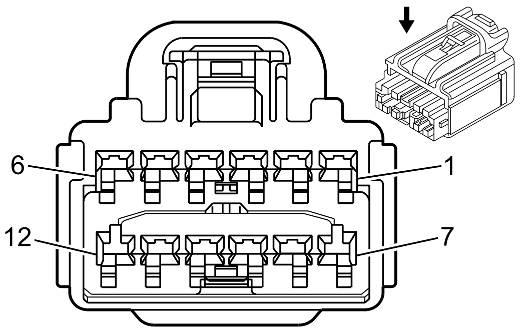
### *Terminal Part Information*

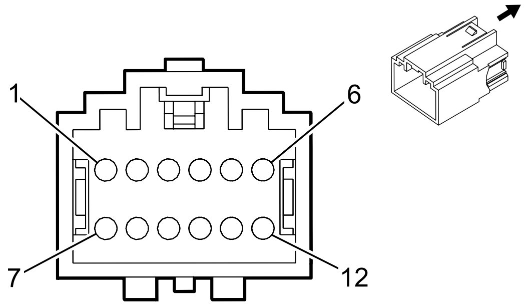
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | Not Required | J-35616-41 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X302 Power Mat Jumper Harness to Floor Console Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.35 | VT/YE | 43 | I | — | Accessory Ignition Voltage | 1 | 0.35 | VT/YE | 43 | III | — |
| 2 | 0.75 | BK | 1050 | I | — | Ground | 2 | 0.75 | BK | 1050 | II | — |
| 3 | 0.35 | L-GN | 4512 | I | — | Wireless Charging System Charge Indicator Control | 3 | 0.35 | L-GN | 4512 | III | — |

## X305 Instrument Panel Harness to Headliner Harness (LUX+Console)





### Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13507762

Service Connector: 89046712

Description: 12-Way F YESC Kaizen Series (L-GY)

### Connector Part Information

Harness Type: Headliner

OEM Connector: 13507705

Service Connector: 88988266

Description: 12-Way M 1.5 Series (L-GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19301756 | J-35616-14 (GN) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| II | 13575818 | J-35616-3 (GY) | J-38125-553 | Not Available | Not Available | Not Available | Not Available |

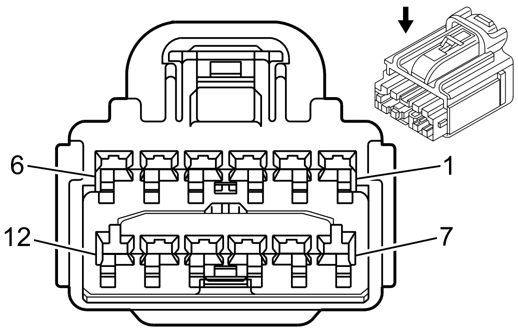
### *X305 Instrument Panel Harness to Headliner Harness (LUX+Console)*

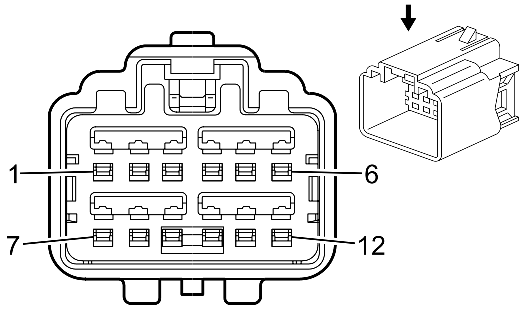
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.35 | BK | 2550 | I | — | Ground | 1 | 0.75 | BK | 1050 | II | E29 |
| | | | | | | Ground | | 0.5 | BK/WH | 2550 | II | U42 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | — | — | — | — | — | Exterior Courtesy Lamp Control | 2 | 0.75 | WH/VT | 1430 | II | — |
| 3 | 0.35 | BK/BN | 654 | I | — | Cellular Telephone Microphone Low Reference | 3 | 0.35<br>0.35 | BK/BN<br>GY/L-GN | 654<br>328 | II<br>II | -UE1<br>E29 |
| 4 | 0.35 | D-BU | 655 | I | — | Cellular Telephone Microphone Signal | 4 | 0.35 | D-BU | 655 | II | — |
| 5 | 0.5 | RD/L-GN | 1540 | I | — | Battery Positive Voltage | 5 | 0.5 | RD/L-GN | 1540 | II | — |
| 6 | 0.35 | D-BU/GY | 3935 | I | — | High Speed GMLAN Serial Data (+) 8 | 6 | 0.35 | D-BU/GY | 3935 | II | — |
| 7 | 0.35 | WH/GY | 3936 | I | — | High Speed GMLAN Serial Data (-) 8 | 7 | 0.35 | WH/GY | 3936 | II | — |
| 8 | 0.5 | WH/D-BU | 5986 | I | — | Serial Data Communication Enable | 8 | 0.35 | WH/D-BU | 5986 | II | — |
| 9 | — | — | — | — | — | LED Ambient Lighting Control 2 | 9 | 0.35 | VT/L-GN | 7558 | II | — |
| 10 | 0.35 | L-GN/YE | 7066 | I | — | LED Backlight Dimming Control<br>Entertainment Remote Enable Signal | 10 | 0.5<br>0.35 | YE<br>L-GN/YE | 6817<br>7066 | II<br>II | E29<br>U42 |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 11 | 0.5 | D-BU/GY | 3935 | I | — | High Speed GMLAN Serial Data (+) 8 | 11 | 0.35 | D-BU/GY | 3935 | II | — |
| 12 | 0.5 | WH/GY | 3936 | I | — | High Speed GMLAN Serial Data (-) 8 | 12 | 0.35 | WH/GY | 3936 | II | — |

# X305 Instrument Panel Harness to Headliner Harness (LUX-Console)





## Connector Part Information

Harness Type: Instrument Panel

OEM Connector: 13507762

Service Connector: 89046712

Description: 12-Way F YESC Kaizen Series (L-GY)

## Connector Part Information

Harness Type: Headliner

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way M

## *Terminal Part Information*

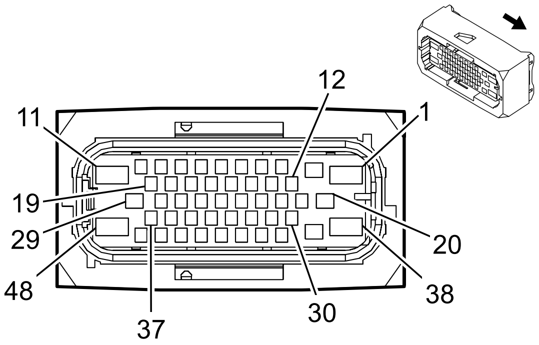
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 19301756 | J-35616-14 (GN) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| II | 19301756 | J-35616-35 (VT) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| III | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

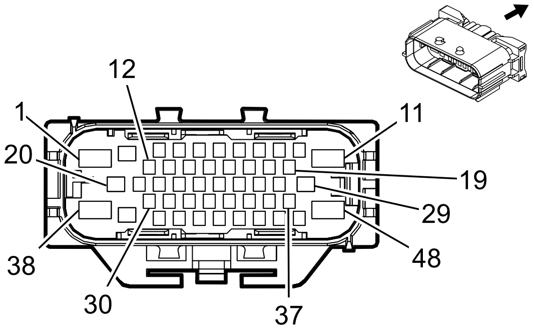
## *X305 Instrument Panel Harness to Headliner Harness (LUX-Console)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | BK | 1050 | I | — | Ground | 1 | 0.5 | BK | 1050 | III | — |
| 2 | 0.75 | WH/VT | 1430 | II | — | Exterior Courtesy Lamp | 2 | 0.75 | WH/VT | 1430 | III | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0.75 | | | | | Control | 2 | 0.75 | | | | |
| 3 | 0.35<br>0.35 | GY/L-GN<br>BK/BN | 328<br>654 | I<br>I | E29<br>UE1 | Interior Lamp Defeat Switch Signal<br>Cellular Telephone Microphone Low Reference | 3 | 0.35<br>0.35 | GY/L-GN<br>BK/BN | 328<br>654 | III<br>III | E29<br>UE1 |
| 4 | 0.35 | D-BU | 655 | I | — | Cellular Telephone Microphone Signal | 4 | 0.35 | D-BU | 655 | III | — |
| 5 | — | — | — | — | — | Not Occupied | 5 | — | — | — | — | — |
| 6 | 0.35 | D-BU/GY | 3935 | I | — | High Speed GMLAN Serial Data (+) 8 | 6 | 0.35 | D-BU/GY | 3935 | III | — |
| 7 | 0.35 | WH/GY | 3936 | I | — | High Speed GMLAN Serial Data (-) 8 | 7 | 0.35 | WH/GY | 3936 | III | — |
| 8 | 0.5 | WH/D-BU | 5986 | I | — | Serial Data Communication Enable | 8 | 0.5 | WH/D-BU | 5986 | III | — |
| 9 | 0.5 | VT/L-GN | 7558 | I | — | LED Ambient Lighting Control 2 | 9 | 0.5 | VT/L-GN | 7558 | III | — |
| 10 | 0.5 | YE | 6817 | I | — | LED Backlight Dimming Control | 10 | 0.5 | YE | 6817 | III | — |
| 11 | 0.5 | D-BU/GY | 3935 | I | — | High Speed GMLAN Serial Data (+) 8 | 11 | 0.5 | D-BU/GY | 3935 | III | — |
| 12 | 0.5 | WH/GY | 3936 | I | — | High Speed GMLAN Serial Data (-) 8 | 12 | 0.5 | WH/GY | 3936 | III | — |

## X310 Driver Seat Cushion Harness to Body Harness (AG1)





### Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 15509588

Service Connector: Service by Harness - See Part Catalog

Description: 48-Way F 1.5 MCP, 2.8 JPT, 6.3 MCP Series, Sealed (YE)

### Connector Part Information

Harness Type: Body

OEM Connector: 15513436

Service Connector: 15513436

Description: 48-Way M 1.6, 2.8, 5.8 Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-40 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| IV | 13505807 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| V | 13575380 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| VI | 13578881 | J-35616-5 (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| VII | 19329756 | J-35616-42 (RD) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| VIII | 19331731 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| IX | 19352419 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| X | 19353142 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

### *X310 Driver Seat Cushion Harness to Body Harness (AG1)*

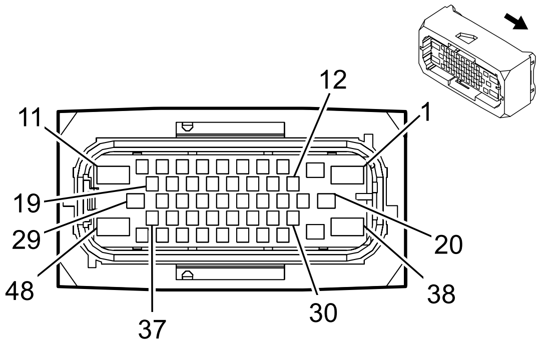
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | — | — | — | — | — | Not Occupied | 1 | — | — | — | — | — |
| 2 | 2.5 | RD/YE | 5040 | III | — | Battery Positive Voltage | 2 | 2.5 | RD/YE | 5040 | VI | — |
| 3 | 1.5 | YE | 5129 | I | — | Adjustable Pedal Actuator Rearward Control | 3 | 1.5 | YE | 5129 | VIII | — |
| 4 | 1.5 | L-GN/VT | 5130 | I | — | Adjustable Pedal Actuator Forward Control | 4 | 1.5 | L-GN/VT | 5130 | VIII | — |
| 5 | 0.35 | OG/L-GN | 5055 | I | — | Driver Seat Position Switch Signal | 5 | 0.35 | OG/L-GN | 5055 | IX | — |
| 6 | 0.35 | OG/BN | 238 | I | — | Driver Seat Belt Switch Signal | 6 | 0.35 | OG/BN | 238 | IX | — |
| 7 | 0.35 | BK/OG | 1363 | I | — | Driver Seat Belt Switch Low Reference | 7 | 0.35 | BK/OG | 1363 | IX | — |
| 8 | — | — | — | — | — | Not Occupied | 8 | — | — | — | — | — |
| 9 | 0.35 | L-GN/GY | 5286 | I | — | Adjustable Pedal Switch Forward Signal | 9 | 0.35 | L-GN/GY | 5286 | IX | — |
| 10 | 0.35 | WH/GY | 5285 | I | — | Adjustable Pedal Switch Rearward Signal | 10 | 0.35 | WH/GY | 5285 | IX | — |
| 11 | 4 | BK | 1150 | II | — | Ground | 11 | 4 | BK | 1150 | VII | — |
| 12 | — | — | — | — | — | Not Occupied | 12 | — | — | — | — | — |

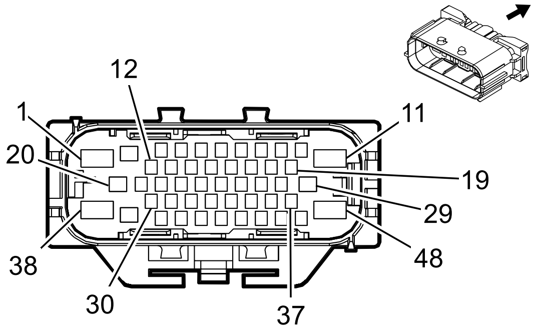
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0.5 | WH/RD | 6207 | I | — | Memory Sensor High Reference | 13 | 0.35 | WH/RD | 6207 | IX | — |
| 14 | 0.35 | L-BU | 5952 | I | — | Adjustable Pedal Position Sensor Brake Signal | 14 | 0.35 | D-BU | 5952 | IX | — |
| 15 | 0.5 | BK/GY | 6206 | I | — | Memory Sensor Low Reference | 15 | 0.35 | BK/GY | 6206 | IX | — |
| 16 | — | — | — | — | — | Not Occupied | 16 | — | — | — | — | — |
| 17 | 0.5 | L-GN/WH | 7530 | I | — | Local Interconnect Network Serial Data Bus 8 | 17 | 0.5 | L-GN/WH | 7530 | IV | — |
| 18 | — | — | — | — | — | Not Occupied | 18 | — | — | — | — | — |
| 19 | 0.35 | L-GN/VT | 5906 | I | — | Driver Seat Vent Motor Control 1 | 19 | 0.35 | L-GN/VT | 5906 | IX | — |
| 20 - 21 | — | — | — | — | — | Not Occupied | 20 - 21 | — | — | — | — | — |
| 22 | 0.75 | BN/BK | 2078 | I | — | Driver Heated Seat Element Low Reference | 22 | 0.75 | BN/BK | 2078 | V | — |
| 23 | 0.75 | RD/BN | 1140 | I | — | Battery Positive Voltage | 23 | 0.5 | RD/BN | 1140 | IV | — |
| 24 | 0.5 | L-GN/OG | 3069 | I | — | Driver Side Impact Module Low Control | 24 | 0.35 | L-GN/OG | 3069 | X | — |
| 25 | 0.5 | YE/OG | 3482 | I | — | Driver Seat Belt Anchor Pretensioner Low Control | 25 | 0.35 | YE/OG | 3482 | X | — |
| 26 | 0.5 | L-GN | 5060 | I | — | Low Speed GMLAN Serial Data | 26 | 0.5 | L-GN | 5060 | IV | — |
| | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 27 | — | — | — | — | — | Not Occupied | 27 | — | — | — | — | — |
| 28 | 0.5 | BN/YE | 2080 | I | — | Driver Heated Seat NTC Low Reference | 28 | 0.5 | BK/YE | 2080 | IV | — |
| 29 | — | — | — | — | — | Not Occupied | 29 | — | — | — | — | — |
| 30 | 0.5 | L-BU | 2425 | I | — | Driver Heated Back NTC Signal | 30 | 0.5 | D-BU | 2425 | IV | — |
| 31 | — | — | — | — | — | Not Occupied | 31 | — | — | — | — | — |
| 32 | 0.5 | YE/GY | 2079 | I | — | Driver Heated Seat NTC Signal | 32 | 0.5 | YE/GY | 2079 | IV | — |
| 33 | 0.5 | OG/L-BU | 3068 | I | — | Driver Side Impact Module High Control | 33 | 0.35 | OG/D-BU | 3068 | X | — |
| 34 | 0.5 | OG/YE | 3481 | I | — | Driver Seat Belt Anchor Pretensioner High Control | 34 | 0.35 | OG/YE | 3481 | X | — |
| 35 | 0.35 | L-GN/L-BU | 614 | I | — | Memory Seat Switch Set Signal | 35 | 0.35 | D-BU/L-GN | 614 | IX | — |
| 36 | 0.75 | BN | 2432 | I | — | Driver Heated Back Element Control | 36 | 0.75 | BN | 2432 | V | — |
| 37 | 0.75 | BN/VT | 2077 | I | — | Driver Heated Seat Element Control | 37 | 0.75 | BN/VT | 2077 | V | — |
| 38 - 39 | — | — | — | — | — | Not Occupied | 38 - 39 | — | — | — | — | — |
| 40 | 0.35 | BK/L-BU | 5978 | I | — | Memory Switch Low Reference | 40 | 0.35 | BK/D-BU | 5978 | IX | — |
| 41 | 0.35 | WH | 615 | I | — | Memory Seat Switch Signal 1 | 41 | 0.35 | WH | 615 | IX | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 42 - 46 | — | — | — | — | — | Not Occupied | 42 - 46 | — | — | — | — | — |
| 47 | 0.75 | RD/L-GN | 5140 | I | — | Battery Positive Voltage | 47 | 0.75 | RD/L-GN | 5140 | V | — |
| 48 | — | — | — | — | — | Not Occupied | 48 | — | — | — | — | — |

# X310 Driver Seat Cushion Harness to Body Harness (-AG1)





## Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 15509611

Service Connector: Service by Harness - See Part Catalog

Description: 48-Way F 1.5 MCP, 2.8 JPT, 6.3 MCP Series, Sealed (YE)

## Connector Part Information

Harness Type: Body

OEM Connector: 33157079

Service Connector: 19329476

Description: 48-Way M 1.6, 2.8, 5.8 Series, Sealed (YE)

## *Terminal Part Information*

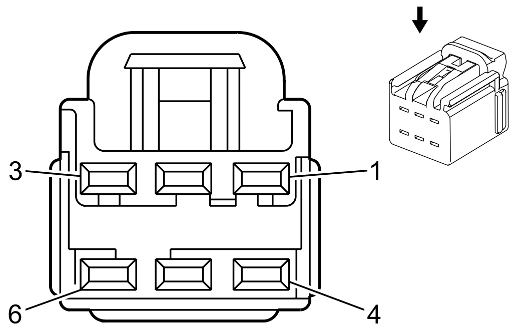
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | 13505807 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| III | 13578881 | J-35616-5 (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| IV | 19329756 | J-35616-42 (RD) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| V | 19352419 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| VI | 19353142 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

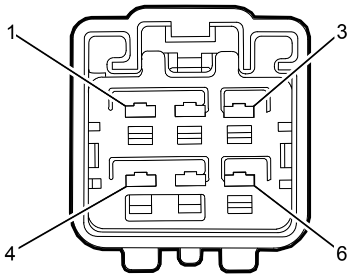
## *X310 Driver Seat Cushion Harness to Body Harness (-AG1)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - 4 | — | — | — | — | — | Not Occupied | 1 - 4 | — | — | — | — | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.35 | OG/L-GN | 5055 | I | — | Driver Seat Position Switch Signal | 5 | 0.35 | OG/L-GN | 5055 | V | — |
| 6 | 0.35 | OG/BN | 238 | I | — | Driver Seat Belt Switch Signal | 6 | 0.35 | OG/BN | 238 | V | — |
| 7 | 0.35 | BK/OG | 1363 | I | — | Driver Seat Belt Switch Low Reference | 7 | 0.35 | BK/OG | 1363 | V | — |
| 8 - 23 | — | — | — | — | — | Not Occupied | 8 - 23 | — | — | — | — | — |
| 24 | 0.5 | L-GN/OG | 3069 | I | — | Driver Side Impact Module Low Control | 24 | 0.35 | L-GN/OG | 3069 | VI | — |
| 25 | 0.5 | YE/OG | 3482 | I | — | Driver Seat Belt Anchor Pretensioner Low Control | 25 | 0.35 | YE/OG | 3482 | VI | — |
| 26 - 32 | — | — | — | — | — | Not Occupied | 26 - 32 | — | — | — | — | — |
| 33 | 0.5 | OG/L-BU | 3068 | I | — | Driver Side Impact Module High Control | 33 | 0.35 | OG/D-BU | 3068 | VI | — |
| 34 | 0.5 | OG/YE | 3481 | I | — | Driver Seat Belt Anchor Pretensioner High Control | 34 | 0.35 | OG/YE | 3481 | VI | — |
| 35 - 48 | — | — | — | — | — | Not Occupied | 35 - 48 | — | — | — | — | — |

# X311 Driver Seat Back Harness to Driver Seat Cushion Harness





## Connector Part Information

Harness Type: Driver Seat Back Jumper

OEM Connector: 7283-6466-40

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F YESC Kaizen Series (L-GY)

## Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 7282-6466-40

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way M YESC Kaizen Series (L-GY)

## *Terminal Part Information*

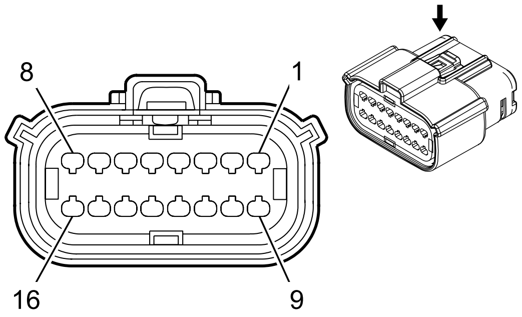
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

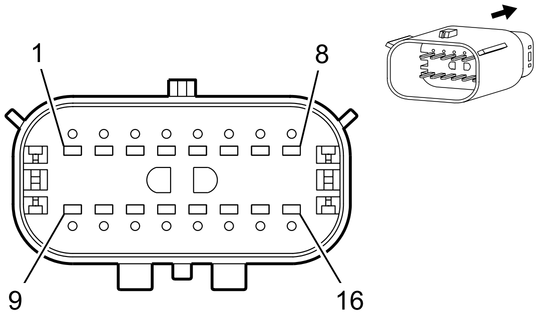
## *X311 Driver Seat Back Harness to Driver Seat Cushion Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | YE/L-BU | 767 | I | — | Driver Power Seat Lumbar Motor Down Control | 1 | 1.5 | YE/L-BU | 767 | II | — |
| 2 | 0.75 | YE/BN | 768 | I | — | Driver Power Seat Lumbar Motor Up Control | 2 | 1.5 | YE/BN | 768 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.75<br>1.5 | L-BU<br>L-BU | 611<br>611 | I<br>I | AL2<br>AL9 | Driver Power Seat Lumbar Motor Forward Control<br>Driver Power Seat Lumbar Motor Forward Control | 3 | 1.5 | L-BU | 611 | II | — |
| 4 | 0.75<br>1.5 | VT<br>VT | 610<br>610 | I<br>I | AL2<br>AL9 | Driver Power Seat Lumbar Motor Rearward Control<br>Driver Power Seat Lumbar Motor Rearward Control | 4 | 1.5 | VT | 610 | II | — |
| 5 | 1.5 | L-GN/YE | 276 | I | — | Driver Power Seat Recline Motor Forward Control | 5 | 1.5 | L-GN/YE | 276 | II | — |
| 6 | 1.5 | L-BU/YE | 277 | I | — | Driver Power Seat Recline Motor Rearward Control | 6 | 1.5 | L-BU/YE | 277 | II | — |

## X312 Driver Seat Back Harness to Driver Seat Cushion Harness (AG1)





### Connector Part Information

Harness Type: Driver Seat Back Jumper

OEM Connector: 33472-1886

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way F 150 MX Series, Sealed (YE)

### Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 33482-1777

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way M 150 MX Series, Sealed (YE)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

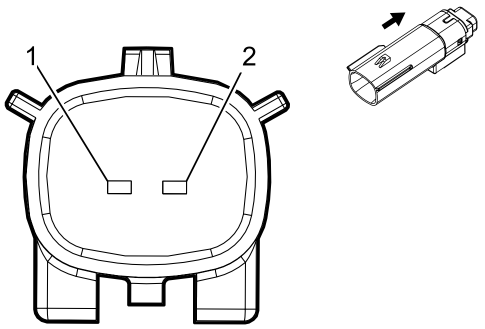
### *X312 Driver Seat Back Harness to Driver Seat Cushion Harness (AG1)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/L-BU | 3068 | I | — | Driver Side Impact Module High Control | 1 | 0.5 | OG/L-BU | 3068 | II | — |
| 2 | 0.5 | L-GN/OG | 3069 | I | — | Driver Side Impact Module Low Control | 2 | 0.5 | L-GN/OG | 3069 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 - 4 | — | — | — | — | — | Not Occupied | 3 - 4 | — | — | — | — | — |
| 5 | 0.75 | BK | 1150 | I | — | Ground | 5 | 0.75 | BK | 1150 | II | — |
| 6 | 0.75 | BN | 2432 | I | — | Driver Heated Back Element Control | 6 | 0.75 | BN | 2432 | II | — |
| 7 | 0.35 | L-GN/VT | 5906 | I | — | Driver Seat Vent Motor Control 1 | 7 | 0.35 | L-GN/VT | 5906 | II | — |
| 8 | 0.5 | BK/YE | 2080 | I | — | Driver Heated Seat NTC Low Reference | 8 | 0.5 | BN/YE | 2080 | II | — |
| 9 | 0.75 | BN/BK | 2078 | I | — | Driver Heated Seat Element Low Reference | 9 | 0.75 | BN/BK | 2078 | II | — |
| 10 | 0.5 | L-BU | 2425 | I | — | Driver Heated Back NTC Signal | 10 | 0.5 | L-BU | 2425 | II | — |
| 11 | 0.75 | RD/L-GN | 5140 | I | — | Battery Positive Voltage | 11 | 0.75 | RD/L-GN | 5140 | II | — |
| 12 | 0.35 | WH/BK | 570 | I | — | Driver Memory Seat Recline Motor Position Sensor Signal | 12 | 0.5 | WH/BK | 570 | II | — |
| 13 | 0.35 | WH/RD | 3298 | I | — | Memory Sensor High Reference 2 | 13 | 0.35 | WH/RD | 3298 | II | — |
| 14 - 16 | — | — | — | — | — | Not Occupied | 14 - 16 | — | — | — | — | — |

## X312 Driver Seat Back Harness to Driver Seat Cushion Harness (-AG1)

—



### Connector Part Information

Harness Type: Driver Seat Back

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F

### Connector Part Information

Harness Type: Driver Seat Cushion

OEM Connector: 33481-0210

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 1.5 MX Series, Sealed (YE)

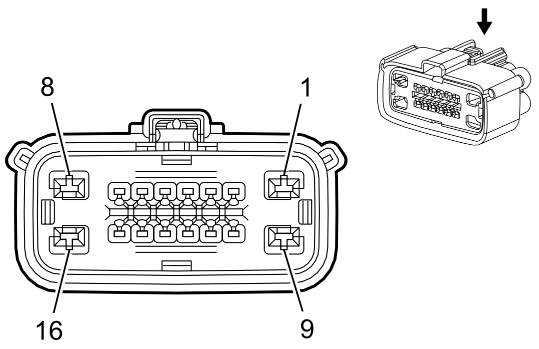
### *Terminal Part Information*

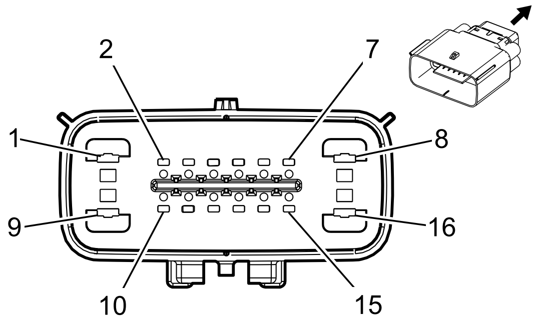
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X312 Driver Seat Back Harness to Driver Seat Cushion Harness (-AG1)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/L-BU | 3068 | I | — | Driver Side Impact Module High Control | 1 | 0.5 | OG/L-BU | 3068 | II | — |
| 2 | 0.5 | L-GN/OG | 3069 | I | — | Driver Side Impact Module Low Control | 2 | 0.5 | L-GN/OG | 3069 | II | — |

## X314 Center Seat Harness to Body Harness





### Connector Part Information

Harness Type: Center Seat

OEM Connector: 34985-1606

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way F 1.5, 2.8 Series, Sealed (BK)

### Connector Part Information

Harness Type: Body

OEM Connector: 33129084

Service Connector: 19331031

Description: 16-Way M 1.5, 2.8 Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | 19119440 | J-35616-3 (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| IV | 19329833 | J-35616-5 (PU) | J-38125-12A | Not Available | Not Available | Not Available | Not Available |

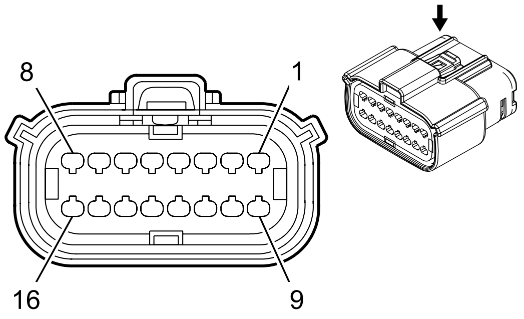
### *X314 Center Seat Harness to Body Harness*

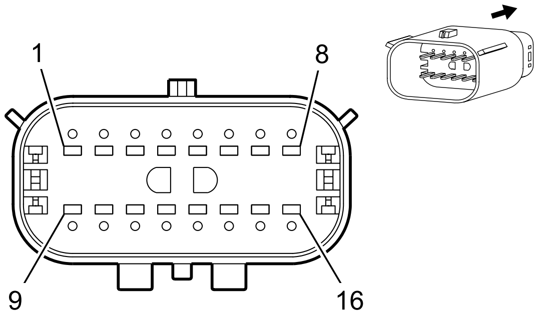
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 1.5 | VT/YE | 143 | II | — | Accessory Ignition Voltage | 1 | 1.5 | VT/YE | 143 | IV | — |
| 2 | — | — | — | — | — | Not Occupied | 2 | — | — | — | — | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | — | — | — | — | — | Not Occupied | 2 | — | — | — | — | — |
| 3 | 0.35 | BK | 5842 | I | — | Auxiliary Audio Screen 2 | 3 | 0.5 | BK | 5842 | III | — |
| 4 | 0.35 | GY | 5839 | I | — | Left Auxiliary Audio Signal 2 | 4 | 0.5 | GY | 5839 | III | — |
| 5 | 0.35 | L-BU | 2060 | I | — | Auxiliary Detection Signal | 5 | 0.5 | D-BU | 2060 | III | — |
| 6 | 0.35 | BK | 2550 | I | — | Ground | 6 | 0.75 | BK | 2550 | III | — |
| 7 | — | — | — | — | — | Not Occupied | 7 | — | — | — | — | — |
| 8 | 1.5 | BK | 1250 | II | — | Ground | 8 | 1.5 | BK | 1250 | IV | — |
| 9 | 1.5 | VT/YE | 243 | II | — | Accessory Ignition Voltage | 9 | 1.5 | VT/YE | 243 | IV | — |
| 10 | — | — | — | — | — | Not Occupied | 10 | — | — | — | — | — |
| 11 | 0.35 | L-GN | 5841 | I | — | Right Auxiliary Audio Signal 2 | 11 | 0.5 | L-GN | 5841 | III | — |
| 12 | 0.35 | VT | 5843 | I | — | Auxiliary Audio Common Signal | 12 | 0.5 | VT | 5843 | III | — |
| 13 | — | — | — | — | — | Not Occupied | 13 | — | — | — | — | — |
| 14 | 0.75 | RD/VT | 340 | I | — | Battery Positive Voltage | 14 | 0.75 | RD/VT | 340 | III | — |
| 15 | — | — | — | — | — | Not Occupied | 15 | — | — | — | — | — |
| | | BK | 1250 | II | — | Ground | | | BK | 1250 | IV | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | 1.5 |  |  |  |  |  | 16 | 1.5 |  |  |  |  |

## X315 Body Harness to Brake Clutch Harness (E29)





### Connector Part Information

Harness Type: Brake Clutch

OEM Connector: 13778557

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way F 1.5 Series, Sealed (BK)

### Connector Part Information

Harness Type: Body

OEM Connector: 13551665

Service Connector: 19300393

Description: 16-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | 13580014 | J-35616-3 (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| III | 19119440 | J-35616-3 (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |

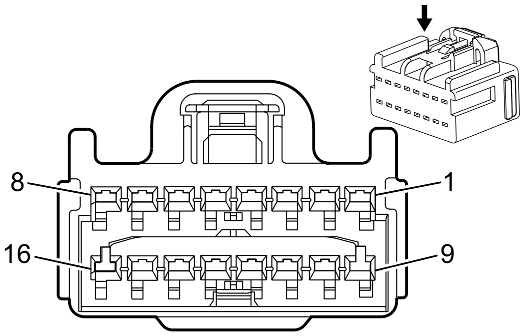
### *X315 Body Harness to Brake Clutch Harness (E29)*

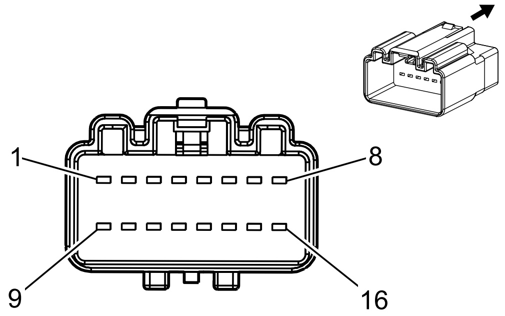
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.35 | BK/D-BU | 1271 | I | — | Accelerator Pedal Position Low Reference 1 | 1 | 0.35 | BK/D-BU | 1271 | II | — |
| 2 | 0.35 | YE/WH | 1161 | I | — | Accelerator Pedal | 2 | 0.35 | YE/WH | 1161 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0.35 | | | | | Position Signal 1 | 2 | 0.35 | | | | |
| 3 | 0.35 | WH/RD | 1164 | I | — | Accelerator Pedal Position 5V Reference 1 | 3 | 0.35 | WH/RD | 1164 | II | — |
| 4 | 0.35 | BK/VT | 1272 | I | — | Accelerator Pedal Position Low Reference 2 | 4 | 0.35 | BK/VT | 1272 | II | — |
| 5 | 0.35 | L-GN/WH | 1162 | I | — | Accelerator Pedal Position Signal 2 | 5 | 0.35 | L-GN/WH | 1162 | II | — |
| 6 | 0.35 | BN/RD | 1274 | I | — | Accelerator Pedal Position 5V Reference 2 | 6 | 0.35 | BN/RD | 1274 | II | — |
| 7 - 9 | — | — | — | — | — | Not Occupied | 7 - 9 | — | — | — | — | — |
| 10 | 0.5 | WH/L-GN | 526 | I | — | Stop Lamp Switch Signal | 10 | 0.35 | WH/L-GN | 526 | III | — |
| 11 | 0.5 | BK/L-GN | 552 | I | — | Sensor Low Reference | 11 | 0.35 | BK/L-GN | 552 | III | — |
| 12 | 0.5 | GY/RD | 598 | I | — | 5V Reference | 12 | 0.35 | GY/RD | 598 | III | — |
| 13 | 0.5 | GY/RD | 6109 | I | — | Clutch Apply Sensor 5V Reference | 13 | 0.5 | GY/RD | 6109 | III | — |
| 14 | 0.5 | BK/GY | 6110 | I | — | Clutch Apply Sensor Low Reference | 14 | 0.5 | BK/GY | 6110 | III | — |
| 15 | 0.5 | YE | 6111 | I | — | Clutch Apply Sensor Signal | 15 | 0.5 | YE | 6111 | III | — |
| 16 | — | — | — | — | — | Not Occupied | 16 | — | — | — | — | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | — | — | — | — | — | Not Occupied | 16 | — | — | — | — | — |

## X315 Body Harness to Brake Clutch Harness (-E29)





### Connector Part Information

Harness Type: Body

OEM Connector: 10847013

Service Connector: 89047090

Description: 16-Way F 1.5 Kaizen Series (GN)

### Connector Part Information

Harness Type: Brake Clutch

OEM Connector: 13507433

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way M 1.5 Kaizen Series (GN)

### *Terminal Part Information*

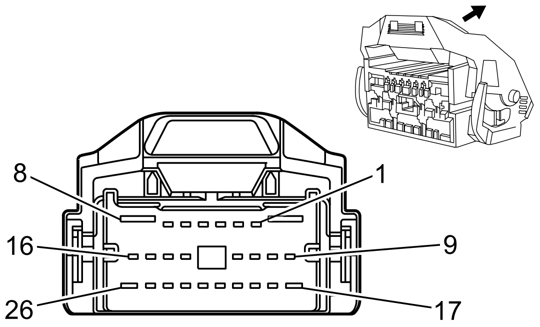
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13578813 | J-35616-2A (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |
| II | 13578891 | J-35616-2A (GY) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| III | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

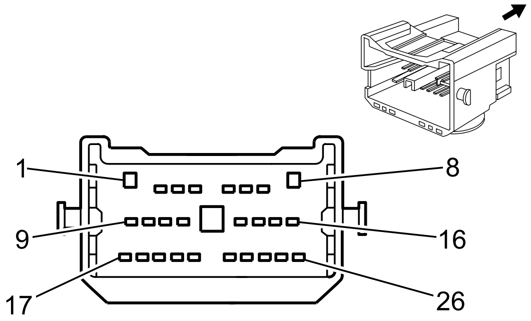
### *X315 Body Harness to Brake Clutch Harness (-E29)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.35 | BK/D-BU | 1271 | I | — | Accelerator Pedal Position Low Reference 1 | 1 | 0.35 | BK/D-BU | 1271 | III | — |
| 2 | 0.35 | YE/WH | 1161 | I | — | Accelerator Pedal | 2 | 0.35 | YE/WH | 1161 | III | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0.35 | | | | | Position Signal 1 | 2 | 0.35 | | | | |
| 3 | 0.35 | WH/RD | 1164 | I | — | Accelerator Pedal Position 5V Reference 1 | 3 | 0.35 | WH/RD | 1164 | III | — |
| 4 | 0.35 | BK/VT | 1272 | I | — | Accelerator Pedal Position Low Reference 2 | 4 | 0.35 | BK/VT | 1272 | III | — |
| 5 | 0.35 | L-GN/WH | 1162 | I | — | Accelerator Pedal Position Signal 2 | 5 | 0.35 | L-GN/WH | 1162 | III | — |
| 6 | 0.35 | BN/RD | 1274 | I | — | Accelerator Pedal Position 5V Reference 2 | 6 | 0.35 | BN/RD | 1274 | III | — |
| 7 | 0.35 | WH | 5359 | II | — | Brake Apply Sensor Control | 7 | 0.5 | WH | 5359 | III | — |
| 8 | 0.35 | BK/BN | 5360 | II | — | Brake Apply Sensor Low Reference | 8 | 0.5 | BK/BN | 5360 | III | — |
| 9 | 0.35 | D-BU/YE | 5361 | II | — | Brake Apply Sensor Signal | 9 | 0.5 | D-BU/YE | 5361 | III | — |
| 10 | 0.5 | YE/BK | 7478 | II | — | Rotary Position Sensor Low Reference | 10 | 0.5 | YE/BK | 7478 | III | — |
| 11 | 0.5 | WH/RD | 7477 | II | — | Rotary Position Sensor 5V Reference | 11 | 0.5 | WH/RD | 7477 | III | — |
| 12 | 0.5 | WH/L-GN | 7479 | II | — | Rotary Position Sensor Signal | 12 | 0.5 | WH/L-GN | 7479 | III | — |
| 13 - 16 | — | — | — | — | — | Not Occupied | 13 - 16 | — | — | — | — | — |

## X316 Headliner Harness to Overhead Console Harness





### Connector Part Information

Harness Type: Headliner

OEM Connector: 15518265

Service Connector: 13587877

Description: 26-Way F 1.5, 2.8, 6.3 Series (BK)

### Connector Part Information

Harness Type: Overhead Console

OEM Connector: 13536441

Service Connector: Service by Harness - See Part Catalog

Description: 26-Way M Hybrid Series (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | 13578891 | J-35616-2A (GY) | J-38125-11A | Not Available | Not Available | Not Available | Not Available |
| II | 13578893 | J-35616-35 (VT) | J-38125-11A | 7116-4110-02 | Yazaki 9 | E | C |
| III | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| IV | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

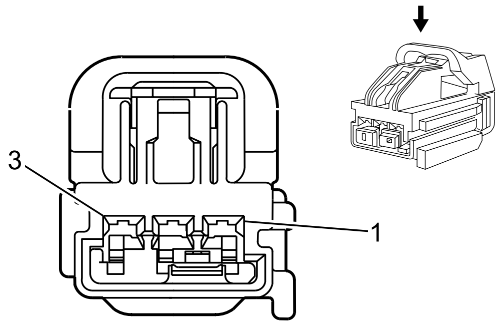
### *X316 Headliner Harness to Overhead Console Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - 2 | — | — | — | — | — | Not Occupied | 1 - 2 | — | — | — | — | — |
| 3 | 0.35 | VT/YE | 43 | I | — | Accessory Ignition Voltage | 3 | 0.35 | VT/YE | 43 | III | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 4 | 0.5 | BK | 1050 | I | — | Ground | 4 | 0.5 | BK | 1050 | III | — |
| 5 | 0.35 | GY/L-GN | 328 | I | — | Interior Lamp Defeat Switch Signal | 5 | 0.35 | GY/L-GN | 328 | III | — |
| 6 | 0.35 | GY/D-BU | 156 | I | — | Courtesy Lamp Switch Signal | 6 | 0.35 | GY | 156 | III | — |
| 7 | 0.5 | WH/BN | 6815 | I | — | Inadvertent Power Control | 7 | 0.5 | WH/BN | 6815 | III | — |
| 8 | — | — | — | — | — | Not Occupied | 8 | — | — | — | — | — |
| 9 | 0.35 | VT/L-GN | 7558 | I | — | LED Ambient Lighting Control 2 | 9 | 0.35 | VT/L-GN | 7558 | III | — |
| 10 | 0.5 | YE | 6817 | I | — | LED Backlight Dimming Control | 10 | 0.5 | YE | 6817 | III | — |
| 11 | 0.35 | VT/BK | 1139 | I | — | Run/Crank Ignition 1 Voltage | 11 | 0.35 | VT/WH | 1139 | III | — |
| 12 | 0.35 | VT/WH | 5234 | I | — | Passenger Seat Belt Indicator Control | 12 | 0.35 | VT/WH | 5234 | III | — |
| 13 | 0.35 | D-BU | 2307 | I | — | Passenger Air Bag On Indicator Control | 13 | 0.35 | D-BU | 2307 | III | — |
| 14 | 0.35 | L-GN/RD | 2308 | I | — | Passenger Air Bag Off Indicator Control | 14 | 0.35 | L-GN | 2308 | III | — |
| 15 - 16 | — | — | — | — | — | Not Occupied | 15 - 16 | — | — | — | — | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 17 | 0.5 | RD/YE | 240 | II | — | Battery Positive Voltage | 17 | 0.5 | RD/YE | 240 | IV | TRW/UG1 |
| 18 | — | — | — | — | — | Not Occupied | 18 | — | — | — | — | — |
| 19 | 0.35 | YE/VT | 6191 | I | — | Power Sliding Window Switch Open Signal | 19 | 0.35 | YE/VT | 6191 | III | — |
| 20 | 0.35 | WH | 6192 | I | — | Power Sliding Window Switch Close Signal | 20 | 0.35 | WH | 6192 | III | — |
| 21 | 0.5 | GY | 157 | I | — | Interior Lamp Control | 21 | 0.5 | GY | 157 | III | — |
| 22 | — | — | — | — | — | Not Occupied | 22 | — | — | — | — | — |
| 23 | 0.35 | VT/YE | 43 | I | — | Accessory Ignition Voltage | 23 | 0.35 | VT/YE | 43 | III | — |
| 24 - 26 | — | — | — | — | — | Not Occupied | 24 - 26 | — | — | — | — | — |

## X317 Headliner Harness to Center High Mounted Stop Lamp Jumper Harness



—

### Connector Part Information

Harness Type: Headliner

OEM Connector: 10847008

Service Connector: 19149536

Description: 3-Way F 1.5 Kaizen Series (L-GY)

### Connector Part Information

Harness Type: Center High Mounted Stop Lamp Jumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 3-Way M

### *Terminal Part Information*

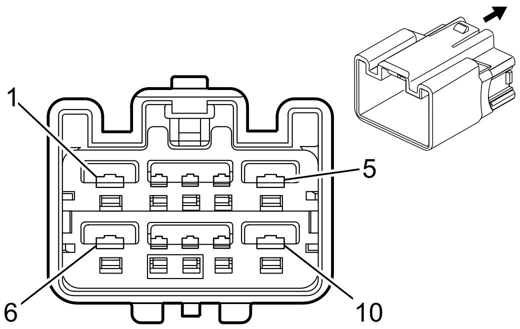
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X317 Headliner Harness to Center High Mounted Stop Lamp Jumper Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | WH/VT | 1430 | I | — | Exterior Courtesy Lamp Control | 1 | 0.75 | WH/VT | 1430 | II | — |
| 2 | 0.5 | VT/GY | 1054 | I | — | Stop Lamp Control | 2 | 0.5 | VT/GY | 1054 | II | — |
| 3 | 0.5 | BK | 1050 | I | — | Ground | 3 | 0.5 | BK | 1050 | II | — |

## X318 Sunroof Jumper Harness to Overhead Console Harness

—



### Connector Part Information

Harness Type: Sunroof Jumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way F

### Connector Part Information

Harness Type: Overhead Console

OEM Connector: 13506926

Service Connector: Service by Harness - See Part Catalog

Description: 10-Way M YESC Kaizen Series (L-GY)

### *Terminal Part Information*

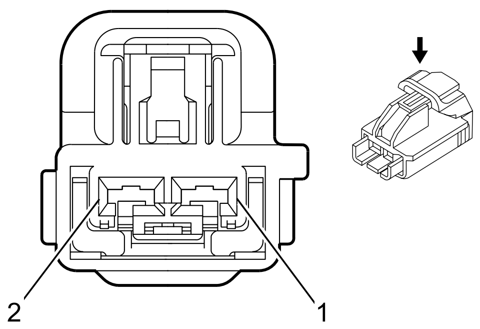
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

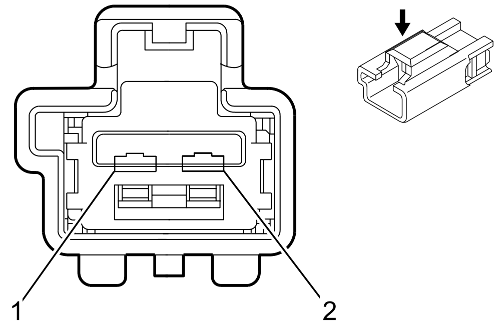
### *X318 Sunroof Jumper Harness to Overhead Console Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0.35 | L-GN/WH | 100 | I | — | Sunroof Switch Open Signal | 2 | 0.35 | L-GN/WH | 100 | II | — |
| 3 | 0.35 | BN/D-BU | 2074 | I | — | Sunroof Switch Express Signal | 3 | 0.35 | BN/D-BU | 2074 | II | — |
| 4 | 0.35 | GY/VT | 2075 | I | — | Sunroof Switch Close Vent Signal | 4 | 0.35 | GY/VT | 2075 | II | — |
| 6 | 0.35 | VT/YE | 43 | I | — | Accessory Ignition Voltage | 6 | 0.35 | VT/YE | 43 | III | — |

|  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
|  |  |  |  |  |  | Voltage |  |  |  |  |  |
| 7 | 0.35 | D-BU/WH | 110 | I | — | Sunroof Switch Close Signal | 7 | 0.35 | D-BU/WH | 110 | II | — |
| 8 | 0.35 | YE/VT | 144 | I | — | Sunroof Switch Open Vent Signal | 8 | 0.35 | YE/VT | 144 | II | — |

## X319 Overhead Console Harness to RH A Pillar Harness





### Connector Part Information

Harness Type: Overhead Console

OEM Connector: 10846819

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F YESC Kaizen Series (L-GY)

### Connector Part Information

Harness Type: RH A Pillar

OEM Connector: 10846812

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M YESC Kaizen Series (L-GY)

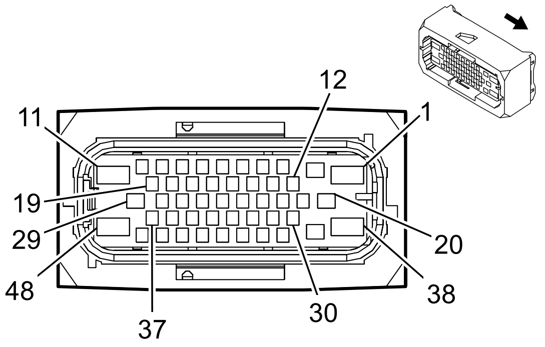
### *Terminal Part Information*

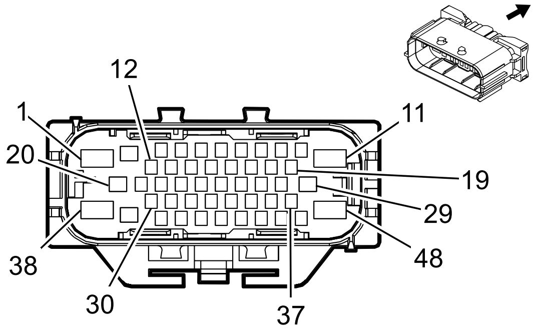
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X319 Overhead Console Harness to RH A Pillar Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.5 | RD/L-GN | 3140 | I | — | Battery Positive Voltage | 1 | 2.5 | RD/L-GN | 3140 | II | — |
| 2 | 2.5 | BK | 1050 | I | — | Ground | 2 | 2.5 | BK | 1050 | II | — |

## X320 Passenger Seat Cushion Harness to Body Harness (Extended Cab/Crew Cab)





### Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 15509588

Service Connector: Service by Harness - See Part Catalog

Description: 48-Way F 1.5 MCP, 2.8 JPT, 6.3 MCP Series, Sealed (YE)

### Connector Part Information

Harness Type: Body

OEM Connector: 15513436

Service Connector: 15513436

Description: 48-Way M 1.6, 2.8, 5.8 Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-40 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| IV | 13505807 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| V | 13575380 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| VI | 13578881 | J-35616-5 (PU) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| VII | 19329756 | J-35616-42 (RD) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| VIII | 19352419 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| IX | 19353142 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

### *X320 Passenger Seat Cushion Harness to Body Harness (Extended Cab/Crew Cab)*

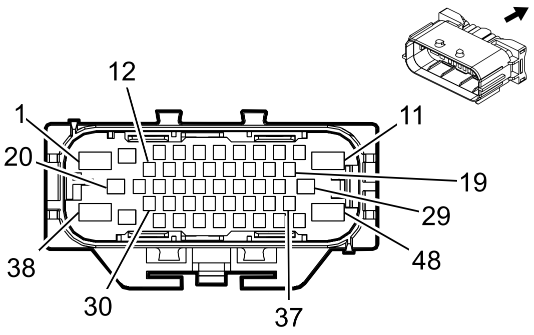
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | — | — | — | — | — | Not Occupied | 1 | — | — | — | — | — |
| 2 | 2.5 | RD/BN | 1440 | III | — | Battery Positive Voltage | 2 | 2.5 | RD/BN | 1440 | VI | — |
| 3 - 4 | — | — | — | — | — | Not Occupied | 3 - 4 | — | — | — | — | — |
| 5 | — | — | — | — | — | Passenger Seat Position Switch Signal | 5 | 0.35 | OG/D-BU | 5056 | VIII | — |
| 6 | 0.35 | OG/VT | 1362 | I | — | Passenger Seat Belt Switch Signal | 6 | 0.35 | OG/VT | 1362 | VIII | — |
| 7 | 0.35 | BK/OG | 1361 | I | — | Passenger Seat Belt Switch Low Reference | 7 | 0.35 | BK/OG | 1361 | VIII | — |
| 8 | 0.75 | BN/VT | 2077 | I | — | Driver Heated Seat Element Control | 8 | 0.75 | BN/VT | 2077 | V | — |
| 9 | 0.75 | BN | 2432 | I | — | Driver Heated Back Element Control | 9 | 0.75 | BN | 2432 | V | — |
| 10 | — | — | — | — | — | Not Occupied | 10 | — | — | — | — | — |
| 11 | 4 | BK | 1250 | II | — | Ground | 11 | 4 | BK | 1250 | VII | — |
| 12 - 13 | — | — | — | — | — | Not Occupied | 12 - 13 | — | — | — | — | — |
| 14 | 0.35 | L-BU/RD | 5612 | I | — | Passenger Seat Belt Tension Sensor 5V Reference | 14 | 0.35 | D-BU/RD | 5612 | VIII | — |
| 15 | 0.35 | VT/OG | 5611 | I | — | Passenger Seat Belt Tension Sensor Signal | 15 | 0.35 | VT/OG | 5611 | VIII | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | — | — | — | — | — | Not Occupied | 16 | — | — | — | — | — |
| 17 | 0.75 | RD/L-GN | 6140 | I | — | Battery Positive Voltage | 17 | 0.75 | RD/L-GN | 6140 | V | — |
| 18 | — | — | — | — | — | Not Occupied | 18 | — | — | — | — | — |
| 19 | 0.35 | L-GN/VT | 5906 | I | — | Driver Seat Vent Motor Control 1 | 19 | 0.35 | L-GN/VT | 5906 | VIII | — |
| 20 - 21 | — | — | — | — | — | Not Occupied | 20 - 21 | — | — | — | — | — |
| 22 | 0.75 | BN/BK | 2078 | I | — | Driver Heated Seat Element Low Reference | 22 | 0.75 | BN/BK | 2078 | V | — |
| 23 | — | — | — | — | — | Not Occupied | 23 | — | — | — | — | — |
| 24 | 0.5 | BN/OG | 3067 | I | — | Passenger Side Impact Module Low Control | 24 | 0.35 | BN/OG | 3067 | IX | — |
| 25 | 0.5 | GY/OG | 3480 | I | — | Passenger Seat Belt Anchor Pretensioner Low Control | 25 | 0.35 | GY/OG | 3480 | IX | — |
| 26 | 0.5 | L-GN | 5060 | I | A45/UFL/UHX | Low Speed GMLAN Serial Data | 26 | 0.35 | L-GN | 5060 | VIII | — |
| | 0.35 | L-GN | 5060 | I | AL0-ULT | Low Speed GMLAN Serial Data | | | | | | |
| 27 | 0.35 | L-GN/L-BU | 6133 | I | — | Local Interconnect Network Serial Data Bus 2 | 27 | 0.5 | L-GN/D-BU | 6133 | IV | — |
| 28 | 0.5 | BK/YE | 2080 | I | — | Driver Heated Seat NTC Low Reference | 28 | 0.5 | BK/YE | 2080 | IV | — |
| 29 | — | — | — | — | — | Not Occupied | 29 | — | — | — | — | — |
| | | L-BU | 2425 | I | — | Driver Heated Back | | | D-BU | 2425 | IV | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 30 | 0.5 | | | | | NTC Signal | 30 | 0.5 | | | | |
| 31 | — | — | — | — | — | Not Occupied | 31 | — | — | — | — | — |
| 32 | 0.5 | YE/GY | 2079 | I | — | Driver Heated Seat NTC Signal | 32 | 0.5 | YE/GY | 2079 | IV | — |
| 33 | 0.5 | OG/GY | 3066 | I | — | Passenger Side Impact Module High Control | 33 | 0.35 | OG/GY | 3066 | IX | — |
| 34 | 0.5 | OG/BN | 3479 | I | — | Passenger Seat Belt Anchor Pretensioner High Control | 34 | 0.35 | OG/BN | 3479 | IX | — |
| 35 | 0.35 | RD/L-GN | 4440 | I | — | Battery Positive Voltage | 35 | 0.35 | RD/L-GN | 4440 | VIII | — |
| 36 | 0.35 | BK/WH | 2751 | I | — | Signal Ground | 36 | 0.5 | BK/WH | 2751 | IV | — |
| 37 - 46 | — | — | — | — | — | Not Occupied | 37 - 46 | — | — | — | — | — |
| 47 | 0.75 | RD/L-GN | 5140 | I | — | Battery Positive Voltage | 47 | 0.75 | RD/L-GN | 5140 | V | — |
| 48 | — | — | — | — | — | Not Occupied | 48 | — | — | — | — | — |

## X320 Passenger Seat Cushion Harness to Body Harness (Regular Cab)

—



### Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 48-Way F

### Connector Part Information

Harness Type: Body

OEM Connector: 33157081

Service Connector: 19329476

Description: 48-Way M 1.6, 2.8, 5.8 Series, Sealed (YE)

### *Terminal Part Information*

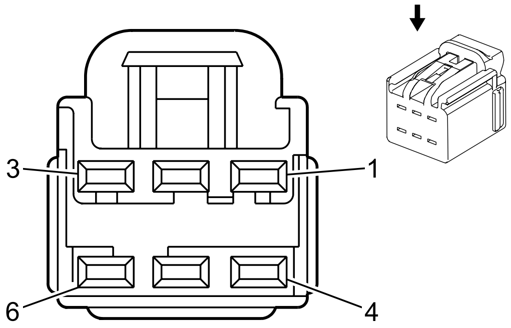
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | 13505807 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| III | 19352419 | J-35616-19 (BK) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| IV | 19353142 | J-35616-3 (GY) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

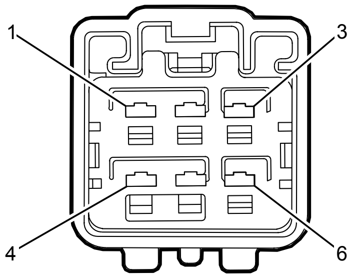
### *X320 Passenger Seat Cushion Harness to Body Harness (Regular Cab)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.35 | OG/D-BU | 5056 | I | — | Passenger Seat Position Switch Signal | 5 | 0.35 | OG/D-BU | 5056 | III | — |
| 6 | 0.35 | OG/VT | 1362 | I | — | Passenger Seat Belt Switch Signal | 6 | 0.35 | OG/VT | 1362 | III | — |
| 7 | 0.35 | BK/OG | 1361 | I | — | Passenger Seat Belt Switch Low Reference | 7 | 0.35 | BK/OG | 1361 | III | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 14 | 0.35 | D-BU/RD | 5612 | I | — | Passenger Seat Belt Tension Sensor 5V Reference | 14 | 0.35 | D-BU/RD | 5612 | III | — |
| 15 | 0.35 | VT/OG | 5611 | I | — | Passenger Seat Belt Tension Sensor Signal | 15 | 0.35 | VT/OG | 5611 | III | — |
| 24 | 0.35 | BN/OG | 3067 | I | — | Passenger Side Impact Module Low Control | 24 | 0.35 | BN/OG | 3067 | IV | — |
| 25 | 0.35 | GY/OG | 3480 | I | — | Passenger Seat Belt Anchor Pretensioner Low Control | 25 | 0.35 | GY/OG | 3480 | IV | — |
| 26 | 0.35 | L-GN | 5060 | I | — | Low Speed GMLAN Serial Data | 26 | 0.35 | L-GN | 5060 | III | — |
| 33 | 0.35 | OG/GY | 3066 | I | — | Passenger Side Impact Module High Control | 33 | 0.35 | OG/GY | 3066 | IV | — |
| 34 | 0.35 | OG/BN | 3479 | I | — | Passenger Seat Belt Anchor Pretensioner High Control | 34 | 0.35 | OG/BN | 3479 | IV | — |
| 35 | 0.35 | RD/L-GN | 4440 | I | — | Battery Positive Voltage | 35 | 0.35 | RD/L-GN | 4440 | III | — |
| 36 | 0.5 | BK/WH | 2751 | I | — | Signal Ground | 36 | 0.5 | BK/WH | 2751 | II | — |

## X321 Passenger Seat Back Harness to Passenger Seat Cushion Harness





### Connector Part Information

Harness Type: Passenger Seat Back

OEM Connector: 7283-6466-40

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F YESC Kaizen Series (L-GY)

### Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 7282-6466-40

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way M YESC Kaizen Series (L-GY)

### *Terminal Part Information*

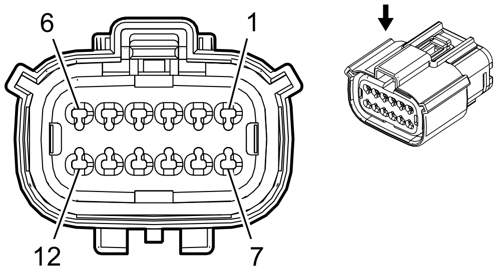
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

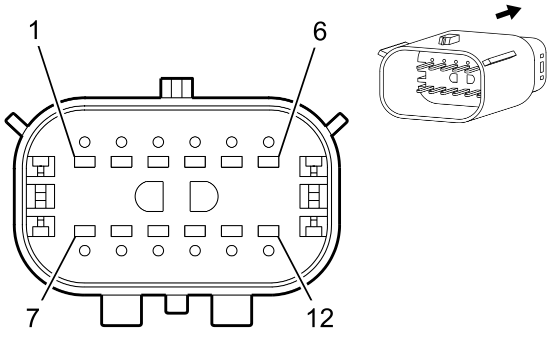
### *X321 Passenger Seat Back Harness to Passenger Seat Cushion Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | L-BU/YE | 792 | I | — | Passenger Power Seat Lumbar Motor Down Control | 1 | 1.5 | L-BU/YE | 792 | II | — |
| 2 | 0.75 | BN/YE | 793 | I | — | Passenger Power Seat Lumbar Motor Up Control | 2 | 1.5 | BN/YE | 793 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 1.5<br>0.75 | L-BU<br>L-BU | 211<br>211 | I<br>I | AG2/AG6+AL9-A45<br>AL2 | Passenger Power Seat Lumbar Motor Forward Control<br>Passenger Power Seat Lumbar Motor Forward Control | 3 | 1.5 | L-BU | 211 | II | — |
| 4 | 1.5<br>0.75 | VT<br>VT | 210<br>210 | I<br>I | AG2/AG6+AL9-A45<br>AL2 | Passenger Power Seat Lumbar Motor Rearward Control<br>Passenger Power Seat Lumbar Motor Rearward Control | 4 | 1.5 | VT | 210 | II | — |
| 5 | 1.5 | L-GN | 76 | I | — | Passenger Power Seat Recline Motor Forward Control | 5 | 1.5 | L-GN | 76 | II | — |
| 6 | 1.5 | L-BU/BN | 77 | I | — | Passenger Power Seat Recline Motor Rearward Control | 6 | 1.5 | L-BU/BN | 77 | II | — |

## X322 Passenger Seat Back Harness to Passenger Seat Cushion Harness





### Connector Part Information

Harness Type: Passenger Seat Back

OEM Connector: 33472-1292

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way F 150 MX Series, Sealed (YE)

### Connector Part Information

Harness Type: Passenger Seat Cushion

OEM Connector: 33482-1336

Service Connector: Service by Harness - See Part Catalog

Description: 12-Way M 150 MX Series, Sealed (YE)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

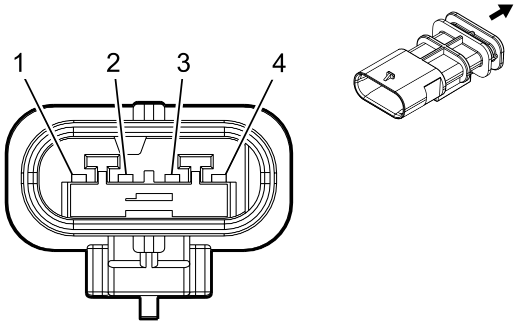
### *X322 Passenger Seat Back Harness to Passenger Seat Cushion Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | OG/GY | 3066 | I | — | Passenger Side Impact Module High Control | 1 | 0.5 | OG/GY | 3066 | II | — |
| 2 | 0.5 | BN/OG | 3067 | I | — | Passenger Side Impact Module Low Control | 2 | 0.5 | BN/OG | 3067 | II | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.75 | BK | 1250 | I | — | Ground | 3 | 0.75 | BK | 1250 | II | — |
| 4 | 0.75 | WH/BN | 2481 | I | — | Passenger Heated Back Element Control | 4 | 0.75 | WH/BN | 2481 | II | — |
| 5 | 0.35 | VT/WH | 5908 | I | — | Passenger Seat Vent Motor Control 1 | 5 | 0.35 | VT/WH | 5908 | II | — |
| 6 | 0.5 | BK/L-GN | 2482 | I | — | Passenger Heated Back NTC Low Reference | 6 | 0.5 | BK/L-GN | 2482 | II | — |
| 7 | 0.75 | GY/BK | 2480 | I | — | Passenger Heated Seat Element Low Reference | 7 | 0.75 | GY/BK | 2480 | II | — |
| 8 | 0.5 | WH/L-BU | 2436 | I | — | Passenger Heated Back NTC Signal | 8 | 0.5 | WH/L-BU | 2436 | II | — |
| 9 | 0.75 | RD/L-GN | 6140 | I | — | Battery Positive Voltage | 9 | 0.75 | RD/L-GN | 6140 | II | — |
| 10 - 12 | — | — | — | — | — | Not Occupied | 10 - 12 | — | — | — | — | — |

## X363 High Voltage Battery Monitoring Harness to Body Harness

GRAPHIC
PENDING



### Connector Part Information

Harness Type: High Voltage Battery Monitoring

OEM Connector: 33195373

Service Connector: Service by Harness - See Part Catalog

Description: 4-Way F 1.2 MCON-CB Series, Sealed (GY)

### Connector Part Information

Harness Type: Body

OEM Connector: 33178128

Service Connector: 19352602

Description: 4-Way M 1.2 MCON-CB Series, Sealed (BK)

### *Terminal Part Information*

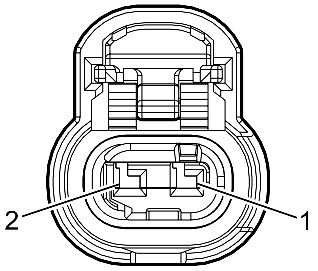
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-13 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

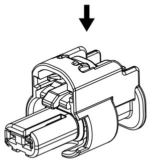
### *X363 High Voltage Battery Monitoring Harness to Body Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | BK/D-BU | 6276 | I | — | Fan Speed Sensor Low Reference | 1 | 0.5 | BK | 1250 | II | — |
| 2 | 0.35 | YE/L-GN | 5598 | I | — | Fan Speed Signal 1 | 2 | 0.35 | YE/L-GN | 5598 | II | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.35 | D-BU/VT | 5599 | I | — | Fan Speed Signal 2 | 3 | 0.35 | D-BU/VT | 5599 | II | — |
| 4 | 0.5 | BN/WH | 6277 | I | — | Fan Speed Sensor Control | 4 | 0.5 | VT/BK | 739 | II | — |

## X380 Body Harness to Roof Rail Air Bag Jumper Harness





—

### Connector Part Information

Harness Type: Body

OEM Connector: 33134903

Service Connector: 19353941

Description: 2-Way F 1.2 MCON Series, Sealed (YE)

### Connector Part Information

Harness Type: Roof Rail Air Bag Jumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M

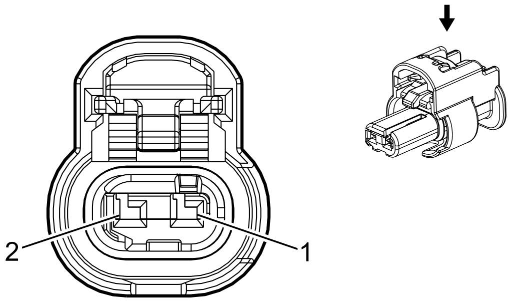
### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X380 Body Harness to Roof Rail Air Bag Jumper Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.35 | OG/L-GN | 5019 | I | — | Left Front Head Curtain Module High Control | 1 | 0.35 | OG/L-GN | 5019 | II | — |
| 2 | 0.35 | VT/OG | 5020 | I | — | Left Front Head Curtain Module Low Control | 2 | 0.35 | VT/OG | 5020 | II | — |

# X390 Body Harness to Roof Rail Air Bag Jumper Harness



—

## Connector Part Information

Harness Type: Body

OEM Connector: 33134903

Service Connector: 19353941

Description: 2-Way F 1.2 MCON Series, Sealed (YE)

## Connector Part Information

Harness Type: Roof Rail Air Bag Jumper

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M

## *Terminal Part Information*

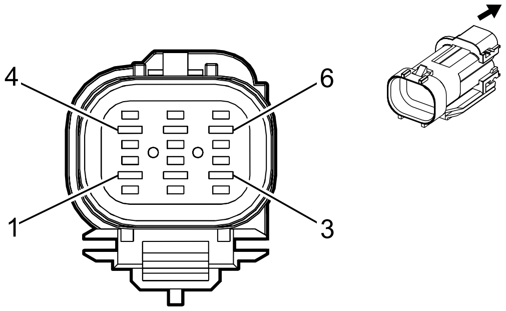
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *X390 Body Harness to Roof Rail Air Bag Jumper Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.35 | OG/GY | 5021 | I | — | Right Front Head Curtain Module High Control | 1 | 0.35 | OG/GY | 5021 | II | — |
| 2 | 0.35 | WH/OG | 5022 | I | — | Right Front Head Curtain Module Low Control | 2 | 0.35 | WH/OG | 5022 | II | — |

## X400 Accessory Cargo Kit Harness to Chassis Harness

—



### Connector Part Information

Harness Type: Accessory Cargo Kit

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F

### Connector Part Information

Harness Type: Chassis

OEM Connector: 10865189

Service Connector: 93185233

Description: 6-Way M 2.8 Series, Sealed (BK)

### *Terminal Part Information*

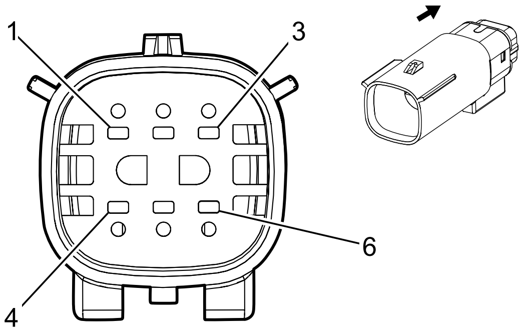
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X400 Accessory Cargo Kit Harness to Chassis Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | WH/VT | 1430 | I | — | Exterior Courtesy Lamp Control | 1 | 0.75 | WH/VT | 1430 | II | — |
| 4 | 0.5 | VT/GY | 1054 | I | — | Stop Lamp Control | 4 | 0.5 | VT/GY | 1054 | II | — |
| 6 | 1 | BK | 1750 | I | — | Ground | 6 | 1 | BK | 1750 | II | — |

# X410 Tail Lamp - Left Harness to Chassis Harness

—



## Connector Part Information

Harness Type: Tail Lamp - Left

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F

## Connector Part Information

Harness Type: Chassis

OEM Connector: 13950454

Service Connector: 13576414

Description: 6-Way M 150 MX Series, Sealed (BK)

## *Terminal Part Information*

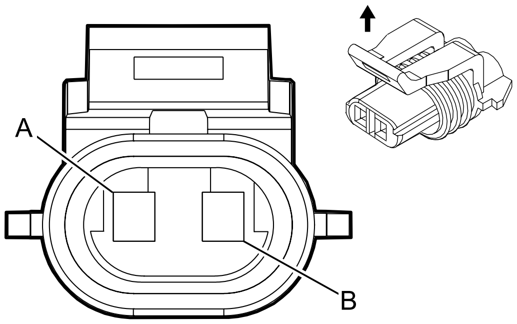
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

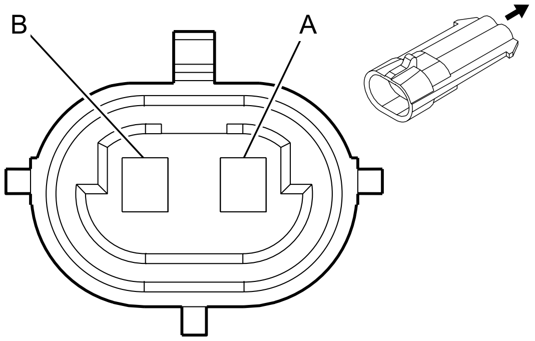
## *X410 Tail Lamp - Left Harness to Chassis Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | YE/D-BU | 18 | I | — | Left Rear Stop/Turn Lamp Control | 1 | 0.75 | YE/D-BU | 18 | II | — |
| 2 | 0.5 | YE/BK | 5356 | I | — | Left Tail Lamp Outage Detection Signal | 2 | 0.5 | YE/BK | 5356 | II | — |
| 4 | 0.75 | L-GN/WH | 24 | I | — | Backup Lamp Control | 4 | 0.75 | L-GN/WH | 24 | II | — |
| 5 | 0.75 | VT/GY | 709 | I | — | Left Park Lamp Control | 5 | 0.75 | VT/GY | 709 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 1.5 | BK | 1750 | I | — | Ground | 6 | 1.5 | BK | 1750 | II | — |

## X416 Rear Bumper Harness to Rear Clearance Lamps Harness





### Connector Part Information

Harness Type: Rear Bumper

OEM Connector: 12052644

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 150 Metri-Pack Series, Sealed (GY)

### Connector Part Information

Harness Type: Rear Clearance Lamps

OEM Connector: 12162343

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 150 Metri-Pack Series (GY)

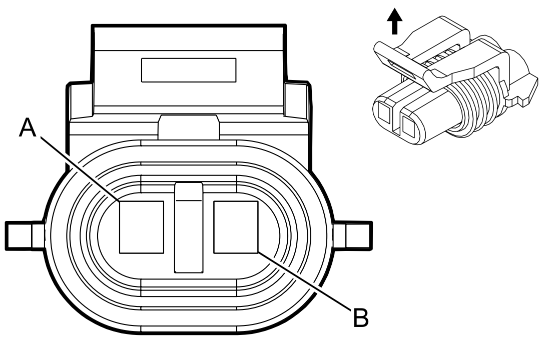
### *Terminal Part Information*

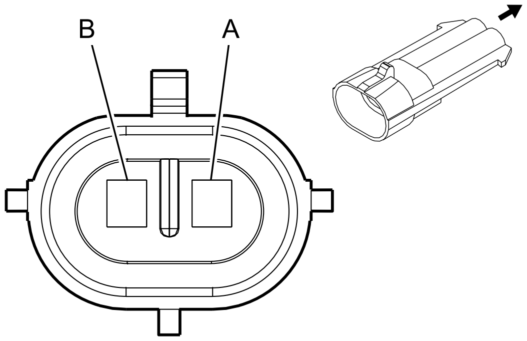
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X416 Rear Bumper Harness to Rear Clearance Lamps Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0.5 | VT/GY | 709 | I | — | Left Park Lamp Control | A | 0.5 | VT/GY | 709 | II | — |
| B | 0.5 | BK | 1750 | I | — | Ground | B | 0.5 | BK | 1750 | II | — |

## X417 Rear Bumper Harness to Rear Clearance Lamps Harness





### Connector Part Information

Harness Type: Rear Bumper

OEM Connector: 12052641

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F 150 Metri-Pack Series (BK)

### Connector Part Information

Harness Type: Rear Clearance Lamps

OEM Connector: 12162000

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 150 Metri-Pack Series (BK)

### *Terminal Part Information*

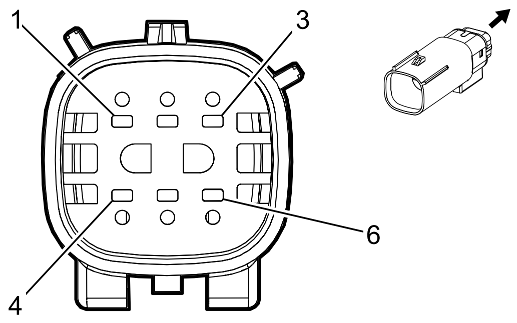
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X417 Rear Bumper Harness to Rear Clearance Lamps Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0.5 | GY/BN | 309 | I | — | Right Park Lamp Control | A | 0.5 | GY/BN | 309 | II | — |
| B | 0.5 | BK | 1750 | I | — | Ground | B | 0.5 | BK | 1750 | II | — |

## X420 Tail Lamp - Right Harness to Chassis Harness (Heavy Duty)

—



### Connector Part Information

Harness Type: Tail Lamp - Right

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F

### Connector Part Information

Harness Type: Chassis

OEM Connector: 33171739

Service Connector: 19333224

Description: 6-Way M 150 MX Series, Sealed (GY)

### *Terminal Part Information*

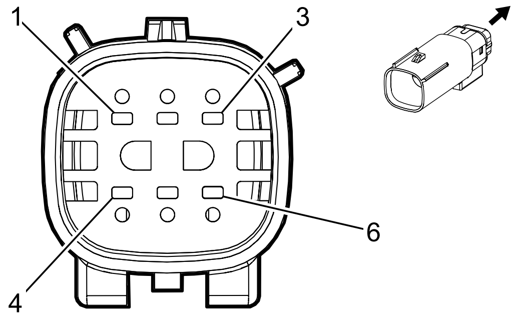
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X420 Tail Lamp - Right Harness to Chassis Harness (Heavy Duty)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | GY/BN | 309 | I | — | Right Park Lamp Control | 1 | 0.75 | GY/BN | 309 | II | — |
| 4 | 0.75 | L-GN/WH | 24 | I | — | Backup Lamp Control | 4 | 0.75 | L-GN/WH | 24 | II | — |
| 5 | 0.75 | BN/L-GN | 19 | I | — | Right Rear Stop/Turn Lamp Control | 5 | 0.75 | BN/L-GN | 19 | II | — |
| 6 | 1.5 | BK | 2150 | I | — | Ground | 6 | 1.5 | BK | 2150 | II | — |

## X420 Tail Lamp - Right Harness to Chassis Harness (Light Duty)

—



### Connector Part Information

Harness Type: Tail Lamp - Right

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 6-Way F

### Connector Part Information

Harness Type: Chassis

OEM Connector: 33162427

Service Connector: 19333223

Description: 6-Way M 150 MX Series, Sealed (GY)

### *Terminal Part Information*

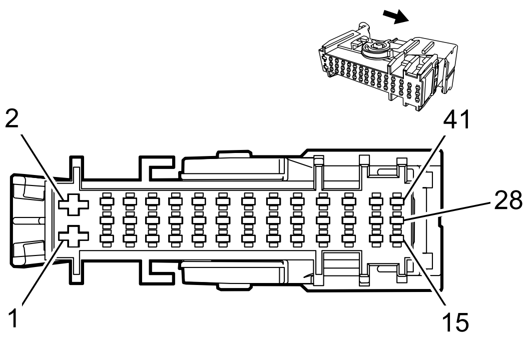
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

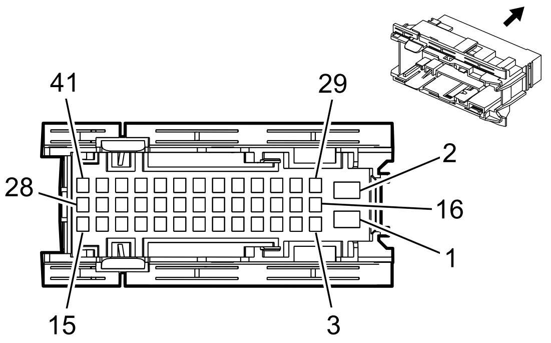
### *X420 Tail Lamp - Right Harness to Chassis Harness (Light Duty)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | GY/BN | 309 | I | — | Right Park Lamp Control | 1 | 0.75 | GY/BN | 309 | II | — |
| 2 | 0.5 | VT/YE | 5357 | I | — | Right Tail Lamp Outage Detection Signal | 2 | 0.5 | VT/YE | 5357 | II | — |
| 4 | 0.75 | L-GN/WH | 24 | I | — | Backup Lamp Control | 4 | 0.75 | L-GN/WH | 24 | II | — |
| 5 | 0.75 | BN/L-GN | 19 | I | — | Right Rear Stop/Turn Lamp Control | 5 | 0.75 | BN/L-GN | 19 | II | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 6 | 1.5 | BK | 2150 | I | — | Ground | 6 | 1.5 | BK | 2150 | II | — |

## X500 Driver Door Harness to Body Harness





### Connector Part Information

Harness Type: Driver Door

OEM Connector: 13600509

Service Connector: Service by Harness - See Part Catalog

Description: 41-Way F 4.8 Timer, 1.5 DSQ Series

### Connector Part Information

Harness Type: Body

OEM Connector: 13946876

Service Connector: 13587760

Description: 41-Way M 1.5, 2.8 Series (GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-42 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | 13575556 | J-35616-34 (YE) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| IV | 13575593 | J-35616-34 (YE) | J-38125-560 | 964265-2 | Lear 28 | E | 2 |
| V | 13575706 | J-35616-42 (RD) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| VI | 13575775 | J-35616-34 (YE) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| VII | 13575776 | J-35616-34 (YE) | J-38125-560 | 964265-2 | Lear 28 | E | 2 |
| VIII | 13575776 | J-35616-34 (YE) | J-38125-560 | 964265-2 | Lear 28 | E | C |
| IX | 13575857 | J-35616-42 (RD) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |

### *X500 Driver Door Harness to Body Harness*

### [illegible] Driver Door Harness to Body Harness

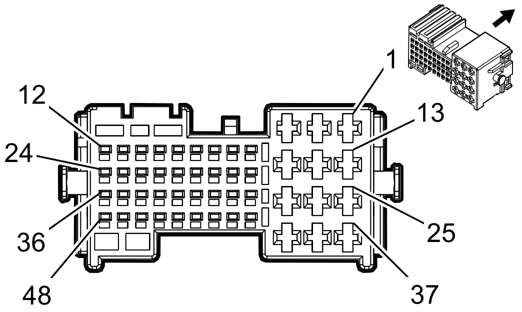
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.5 | RD/D-BU | 1842 | II | — | Battery Positive Voltage | 1 | 2.5 | RD/D-BU | 1842 | IX | — |
| 2 | 3 | BK | 1150 | II | — | Ground | 2 | 4 | BK | 1150 | V | — |
| 3 | 0.5 | GY/WH | 5996 | I | — | Driver Outside Rear View Mirror Puddle Lamp Control | 3 | 0.5 | GY/L-GN | 5996 | IV | — |
| 4 | 0.5 | WH | 3398 | I | — | Passenger Mirror Motor Common Control | 4 | 0.5 | WH | 3398 | VII | — |
| 5 | 0.35 | YE/BK | 1690 | I | — | Automatic Day/Night Mirror Signal | 5 | 0.35 | YE/WH | 1690 | VI | — |
| 6 | 0.35 | BK/YE | 1691 | I | — | Automatic Day/Night Mirror Low Reference | 6 | 0.35 | BK/YE | 1691 | VI | — |
| 7 | 0.35<br>0.5 | D-BU/L-GN<br>WH/L-GN | 614<br>3412 | I<br>I | A45<br>DL3/DQS-A45 | Memory Seat Switch Set Signal<br>Driver Mirror Motor Fold In Control | 7 | 0.35<br>0.5 | D-BU/L-GN<br>WH/L-GN | 614<br>3412 | VI<br>VII | A45<br>DL3/DQS-A45 |
| 8 | 0.35<br>0.5 | WH<br>GY/WH | 615<br>3411 | I<br>I | A45<br>DL3/DQS-A45 | Memory Seat Switch Signal 1<br>Driver Mirror Motor Fold Out Control | 8 | 0.35<br>0.5 | WH<br>GY/WH | 615<br>3411 | VI<br>VII | A45<br>DL3/DQS-A45 |
| 9 | 0.5 | WH/VT | 1430 | I | — | Exterior Courtesy Lamp Control | 9 | 0.5 | WH/VT | 1430 | VII | — |

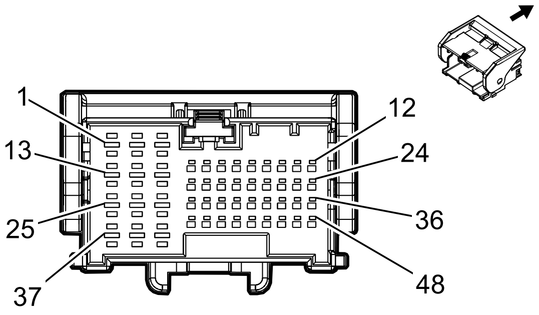
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 10 | 1 | D-BU | 201 | I | — | Left Front Speaker Control (+) 1<br>Left Front Speaker Control (+) 1 | 10 | 0.75<br>1 | D-BU<br>D-BU | 201<br>201 | VIII<br>III | UQ3/UQ5<br>UQA/UQG/UQS |
| 11 | 0.5 | VT/GY | 709 | I | — | Left Park Lamp Control | 11 | 0.5 | VT/GY | 709 | VII | — |
| 12 | 0.35 | GY | 745 | I | — | Left Front Door Ajar Switch Signal | 12 | 0.35 | GY | 745 | VI | — |
| 13 | 0.35 | WH/VT | 3270 | I | — | Driver Door Lock Motor Status Signal<br>Driver Door Lock Motor Status Signal | 13 | 0.35<br>0.35 | WH/VT<br>WH/VT | 3270<br>3270 | VI<br>IV | -REGULAR CAB<br>REGULAR CAB/EXTENDED CAB/CREW CAB |
| 14 | 0.5 | OG/L-GN | 2132 | I | — | Left Front Side Impact Sensing Module Signal | 14 | 0.35 | OG/L-GN | 2132 | VI | — |
| 15 | 0.5 | BK/OG | 6628 | I | — | Left Front Side Impact Sensing Module Low Reference | 15 | 0.35 | BK/OG | 6628 | VI | — |
| 16 | 0.35 | WH | 6816 | I | — | Indicator Dimming Control | 16 | 0.5 | WH | 6816 | VII | — |
| 17 | 0.35 | BN/WH | 781 | I | — | Driver Door Lock Switch Unlock Signal | 17 | 0.35 | BN/WH | 781 | VI | — |
| 18 | 0.35 | BN/YE | 780 | I | — | Driver Door Lock Switch Lock Signal | 18 | 0.35 | BN/YE | 780 | VI | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 19 | 0.75 | BN/BK | 294 | I | — | Door Lock Actuator Unlock Control | 19 | 0.75 | BN/YE | 294 | VIII | — |
| 20 | 0.75 | GY | 5911 | I | — | Door Lock Actuator Lock Control 2 | 20 | 0.75 | GY | 5911 | VIII | — |
| 21 | 0.35 | BK/D-BU | 5978 | I | — | Memory Switch Low Reference | 21 | 0.35 | BK/D-BU | 5978 | VI | — |
| 22 | — | — | — | — | — | Not Occupied | 22 | — | — | — | — | — |
| 23 | 1 | BN/D-BU | 118 | I | — | Left Front Speaker Signal (-) 1<br>Left Front Speaker Signal (-) 1 | 23 | 0.75<br>1 | BN/D-BU<br>BN/D-BU | 118<br>118 | VIII<br>III | UQ3/UQ5<br>UQA/UQG/UQS |
| 24 - 25 | — | — | — | — | — | Not Occupied | 24 - 25 | — | — | — | — | — |
| 26 | 0.35 | D-BU/VT | 1124 | I | — | Door Lock Key Switch Unlock Signal<br>Door Lock Key Switch Unlock Signal | 26 | 0.35<br>0.35 | D-BU/VT<br>D-BU/VT | 1124<br>1124 | VI<br>IV | -REGULAR CAB<br>REGULAR CAB/EXTENDED CAB/CREW CAB |
| 27 - 28 | — | — | — | — | — | Not Occupied | 27 - 28 | — | — | — | — | — |
| 29 | 0.35 | YE | 6817 | I | — | LED Backlight Dimming Control | 29 | 0.35 | YE | 6817 | VI | — |
| 30 | 0.35 | WH/YE | 7557 | I | — | LED Ambient Lighting Control 1 | 30 | 0.35 | WH/YE | 7557 | VI | — |
| 31 | 0.5 | BN/OG | 2267 | I | — | Mirror Heating Element Control | 31 | 0.5 | BN/YE | 2267 | VII | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 0.35 | GY | 5697 | I | — | Child Lockout Indicator Control | 32 | 0.35 | GY | 5697 | VI | — |
| 33 | 0.5 | L-GN/YE | 6134 | I | — | Local Interconnect Network Serial Data Bus 3 | 33 | 0.5 | L-GN/YE | 6134 | IV | — |
| 34 | 0.5 | L-GN/WH | 7530 | I | — | Local Interconnect Network Serial Data Bus 8 | 34 | 0.5 | L-GN/WH | 7530 | VII | — |
| 35 | 0.35 | BN/RD | 3265 | I | — | Child Security Lock Switch Signal | 35 | 0.35 | YE/BN | 3265 | VI | — |
| 36 | 0.5 | L-GN/BK | 3396 | I | — | Passenger Mirror Motor Right (+) Left (-) Control | 36 | 0.5 | L-GN/BK | 3396 | VII | — |
| 37 | — | — | — | — | — | Not Occupied | 37 | — | — | — | — | — |
| 38 | 0.5 | YE/VT | 3397 | I | — | Passenger Mirror Motor Up (+) Down (-) Control | 38 | 0.5 | YE/VT | 3397 | VII | — |
| 39 | — | — | — | — | — | Not Occupied | 39 | — | — | — | — | — |
| 40 | 0.5 | RD/VT | 1940 | I | — | Battery Positive Voltage | 40 | 0.5 | RD/VT | 1940 | VII | — |
| 41 | 0.5 | D-BU/WH | 1314 | I | — | Left Front Turn Signal Lamp Control | 41 | 0.75 | D-BU/WH | 1314 | VIII | — |

## X505 Driver Door Harness to Driver Door Trim Harness





### Connector Part Information

Harness Type: Driver Door

OEM Connector: 13889713

Service Connector: Service by Harness - See Part Catalog

Description: 48-Way F 1.2 MCON, 2.8 MCP Series

### Connector Part Information

Harness Type: Driver Door Trim

OEM Connector: 15512031

Service Connector: Service by Harness - See Part Catalog

Description: 48-Way M 1.2 MCON, 2.8 MCP Series (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | Not Required | J-35616-13 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| IV | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X505 Driver Door Harness to Driver Door Trim Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.35 | YE | 6817 | II | — | LED Backlight Dimming Control | 1 | 0.35 | YE | 6817 | IV | — |
|  |  |  |  |  |  | LED Backlight Dimming |  |  |  |  |  |  |

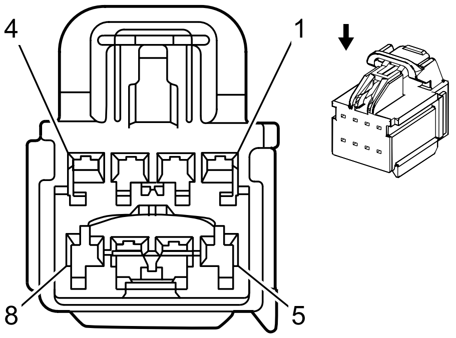
| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Control | | | | | | |
| 2 | 0.35 | WH/YE | 7557 | II | — | LED Ambient Lighting Control 1 | 2 | 0.35 | WH/YE | 7557 | IV | — |
| 3 | 0.35 | WH | 6816 | II | — | Indicator Dimming Control | 3 | 0.35 | WH | 6816 | IV | — |
| 4 | — | — | — | — | — | Not Occupied | 4 | — | — | — | — | — |
| 5 | 0.5 | BN/BK | 3389 | I | — | Driver Mirror Motor Right (+) Left (-) Control | 5 | 0.75 | BN/BK | 3389 | III | — |
| 6 | 0.5 | VT/D-BU | 3390 | I | — | Driver Mirror Motor Up (+) Down (-) Control | 6 | 0.75 | VT/D-BU | 3390 | III | — |
| 7 | 0.5 | YE/BN | 3391 | I | — | Driver Mirror Motor Common Control | 7 | 0.75 | YE/BN | 3391 | III | — |
| 8 | 0.5 | GY/WH | 3411 | I | — | Driver Mirror Motor Fold Out Control | 8 | 0.75 | GY/WH | 3411 | III | — |
| 9 | 0.5 | WH/L-GN | 3412 | I | — | Driver Mirror Motor Fold In Control | 9 | 0.75 | WH/L-GN | 3412 | III | — |
| 10 | 0.35 | GY/BN | 3394 | I | — | Driver Mirror Position Sensor Up (+) Down (-) Signal | 10 | 0.35 | GY/BN | 3394 | III | — |
| 11 | 0.5 | BN/BK | 3389 | I | — | Driver Mirror Motor Right (+) Left (-) Control | 11 | 0.75 | BN/BK | 3389 | III | — |
| 12 | 0.35 | VT/RD | 3392 | I | — | Driver Mirror Position Sensor 5V Reference | 12 | 0.35 | VT/RD | 3392 | III | — |

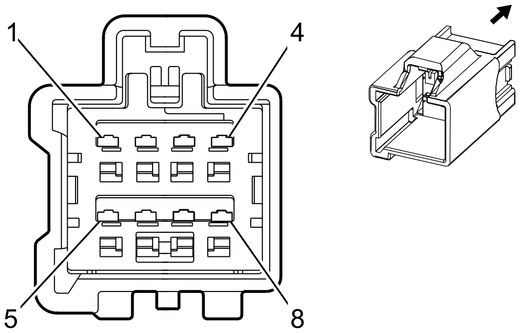
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0.35 | WH/YE | 3395 | II | — | Driver Mirror Position Sensor Left (-) Right (+) Signal | 13 | 0.35 | WH/YE | 3395 | IV | — |
| 14 | 0.35 | BK/BN | 3393 | II | — | Driver Mirror Position Sensor Low Reference | 14 | 0.35 | BK/BN | 3393 | IV | — |
| 15 - 16 | — | — | — | — | — | Not Occupied | 15 - 16 | — | — | — | — | — |
| 17 | 0.5 | BK | 1150 | I | — | Ground | 17 | 0.35 | BK | 1150 | III | — |
| 18 - 21 | — | — | — | — | — | Not Occupied | 18 - 21 | — | — | — | — | — |
| 22 | 0.5 | RD/VT | 1940 | I | — | Battery Positive Voltage | 22 | 0.5 | RD/VT | 1940 | III | — |
| 23 | 0.75 | BK | 1150 | I | — | Ground | 23 | 0.75 | BK | 1150 | III | — |
| 24 | — | — | — | — | — | Not Occupied | 24 | — | — | — | — | — |
| 25 | 0.5 | GY/WH | 3411 | II | — | Driver Mirror Motor Fold Out Control | 25 | 0.75 | GY/WH | 3411 | IV | — |
| 26 | 0.5 | WH/L-GN | 3412 | II | — | Driver Mirror Motor Fold In Control | 26 | 0.75 | WH/L-GN | 3412 | IV | — |
| 27 - 28 | — | — | — | — | — | Not Occupied | 27 - 28 | — | — | — | — | — |
| 29 | 0.35 | GY | 1136 | I | — | Power Window Master Switch Left Front Down Signal | 29 | 0.35 | GY | 1136 | III | — |
| 30 | 0.35 | L-GN/WH | 1300 | I | — | Power Window Master Switch Left Front Up Signal | 30 | 0.35 | L-GN/WH | 1300 | III | — |
| 31 | 0.35 | L-GN/VT | 7628 | I | — | Power Window Motor Left Front Express Control | 31 | 0.35 | L-GN/VT | 7628 | III | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 32 | 0.35 | BK/D-BU | 5978 | I | — | Memory Switch Low Reference | 32 | 0.35 | BK/D-BU | 5978 | III | — |
| 33 | 0.35 | D-BU/L-GN | 614 | I | — | Memory Seat Switch Set Signal | 33 | 0.35 | D-BU/L-GN | 614 | III | — |
| 34 | 0.35 | WH | 615 | I | — | Memory Seat Switch Signal 1 | 34 | 0.35 | WH | 615 | III | — |
| 35 | — | — | — | — | — | Not Occupied | 35 | — | — | — | — | — |
| 36 | 0.5 | L-GN/YE | 6134 | I | — | Local Interconnect Network Serial Data Bus 3 | 36 | 0.5 | L-GN/YE | 6134 | III | — |
| 37 | 0.5 | L-GN/WH | 7530 | II | — | Local Interconnect Network Serial Data Bus 8 | 37 | 0.5 | L-GN/WH | 7530 | IV | — |
| 38 - 39 | — | — | — | — | — | Not Occupied | 38 - 39 | — | — | — | — | — |
| 40 | 0.35 | BN/RD | 3265 | I | — | Child Security Lock Switch Signal | 40 | 0.35 | YE/BN | 3265 | III | — |
| 41 | 0.35 | WH/VT | 3270 | I | — | Driver Door Lock Motor Status Signal | 41 | 0.35 | WH/VT | 3270 | III | — |
| 42 | 0.5 | L-GN/BK | 3396 | I | — | Passenger Mirror Motor Right (+) Left (-) Control | 42 | 0.75 | L-GN/BK | 3396 | III | — |
| 43 | 0.5 | YE/VT | 3397 | I | — | Passenger Mirror Motor Up (+) Down (-) Control | 43 | 0.75 | YE/VT | 3397 | III | — |
| 44 | 0.5 | WH | 3398 | I | — | Passenger Mirror Motor Common Control | 44 | 0.75 | WH | 3398 | III | — |

|  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 45 | 0.35 | GY | 5697 | I | — | Child Lockout Indicator Control | 45 | 0.35 | GY | 5697 | III | — |
| 46 | 0.35 | D-BU/VT | 1124 | I | — | Door Lock Key Switch Unlock Signal | 46 | 0.35 | D-BU/VT | 1124 | III | — |
| 47 | 0.35 | BN/WH | 781 | I | — | Driver Door Lock Switch Unlock Signal | 47 | 0.35 | BN/WH | 781 | III | — |
| 48 | 0.35 | BN/YE | 780 | I | — | Driver Door Lock Switch Lock Signal | 48 | 0.35 | BN/YE | 780 | III | — |

## X506 Driver Door Trim Harness to Driver Door Harness





## Connector Part Information

Harness Type: Driver Door Trim

OEM Connector: 10846802

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F 1.5 YESC Kaizen Series (L-GY)

## Connector Part Information

Harness Type: Driver Door

OEM Connector: 10847035

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way M 1.5 YESC Kaizen Series (L-GY)

## *Terminal Part Information*

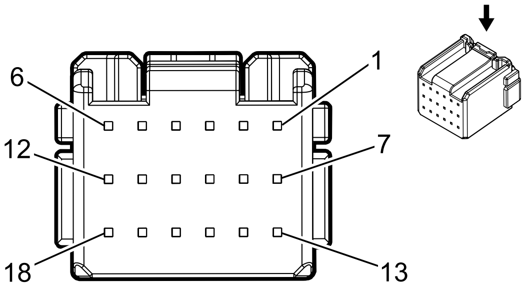
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

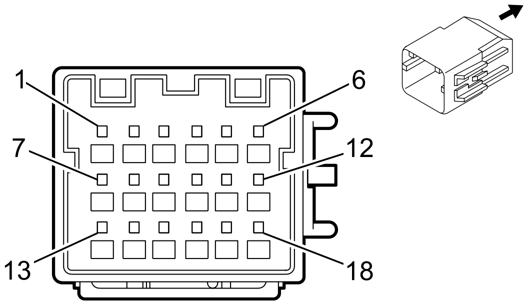
## *X506 Driver Door Trim Harness to Driver Door Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - 3 | — | — | — | — | — | Not Occupied | 1 - 3 | — | — | — | — | — |
| 4 | 0.35 | BN/YE | 780 | I | — | Driver Door Lock Switch Lock Signal | 4 | 0.35 | BN/YE | 780 | II | — |
| 5 | 0.35 | BN/WH | 781 | I | — | Driver Door Lock Switch | 5 | 0.35 | BN/WH | 781 | II | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.35 |  |  |  |  | Unlock Signal | 5 | 0.35 |  |  |  |  |
| 6 | 0.35 | YE | 6817 | I | — | LED Backlight Dimming Control | 6 | 0.35 | YE | 6817 | II | — |
| 7 | 0.35 | BK | 1150 | I | — | Ground | 7 | 0.5 | BK | 1150 | II | — |
| 8 | — | — | — | — | — | Not Occupied | 8 | — | — | — | — | — |

## X510 Driver Door Trim Harness to Driver Door Harness





### Connector Part Information

Harness Type: Driver Door Trim

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 18-Way F

### Connector Part Information

Harness Type: Driver Door

OEM Connector: 13888973

Service Connector: Service by Harness - See Part Catalog

Description: 18-Way M 0.64 Series (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-65B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

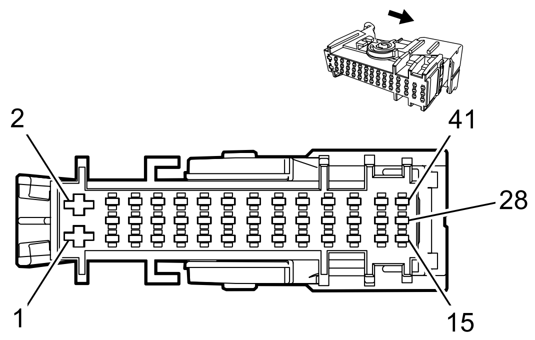
### *X510 Driver Door Trim Harness to Driver Door Harness*

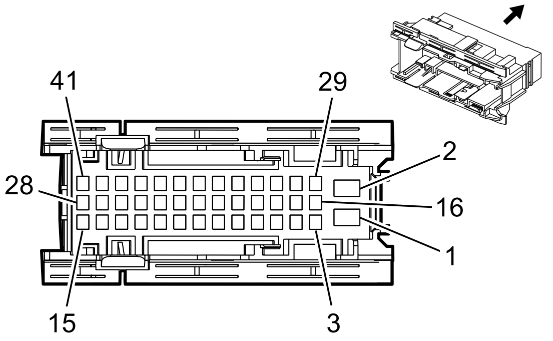
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5<br>0.5 | GY/WH<br>VT/GY | 5996<br>709 | I<br>I | DL3<br>DQS/DPN | Driver Outside Rear View Mirror Puddle Lamp Control<br>Left Park Lamp Control | 1 | 0.5<br>0.5 | GY/WH<br>VT/GY | 5996<br>709 | II<br>II | DL3<br>DQS/DPN |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0.35<br>0.5 | YE/BK<br>WH/VT | 1690<br>1430 | I<br>I | DL3/DR4<br>DQS/DPN | Automatic Day/Night Mirror Signal<br>Exterior Courtesy Lamp Control | 2 | 0.35<br>0.5 | YE/BK<br>WH/VT | 1690<br>1430 | II<br>II | DL3/DR4<br>DQS/DPN |
| 3 | 0.35 | BK/BN | 3393 | I | — | Driver Mirror Position Sensor Low Reference | 3 | 0.35 | BK/BN | 3393 | II | — |
| 4 | 0.5 | GY/WH | 3411 | I | — | Driver Mirror Motor Fold Out Control | 4 | 0.5 | GY/WH | 3411 | II | — |
| 5 | 0.5 | BK | 1150 | I | — | Ground | 5 | 0.5 | BK | 1150 | II | — |
| 6 | — | — | — | — | — | Not Occupied | 6 | — | — | — | — | — |
| 7 | 0.35 | WH/YE | 3395 | I | — | Driver Mirror Position Sensor Left (-) Right (+) Signal | 7 | 0.35 | WH/YE | 3395 | II | — |
| 8 | 0.5 | BN/OG | 2267 | I | — | Mirror Heating Element Control | 8 | 0.5 | BN/OG | 2267 | II | — |
| 9 | 0.5 | VT/D-BU | 3390 | I | — | Driver Mirror Motor Up (+) Down (-) Control | 9 | 0.5 | VT/D-BU | 3390 | II | — |
| 10 | 0.5 | BN/BK | 3389 | I | — | Driver Mirror Motor Right (+) Left (-) Control | 10 | 0.5 | BN/BK | 3389 | II | — |
| 11 | 0.5 | BK | 1150 | I | — | Ground | 11 | 0.5 | BK | 1150 | II | — |
| 12 | 0.5 | YE/BN | 3391 | I | — | Driver Mirror Motor Common Control | 12 | 0.5 | YE/BN | 3391 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0.5 | D-BU/WH | 1314 | I | — | Left Front Turn Signal Lamp Control | 13 | 0.5 | D-BU/WH | 1314 | II | — |
| 14 | 0.35 | GY/BN | 3394 | I | — | Driver Mirror Position Sensor Up (+) Down (-) Signal | 14 | 0.35 | GY/BN | 3394 | II | — |
| 15 | — | — | — | — | — | Not Occupied | 15 | — | — | — | — | — |
| 16 | 0.35 | BK/YE | 1691 | I | — | Automatic Day/Night Mirror Low Reference | 16 | 0.35 | BK/YE | 1691 | II | — |
| 17 | 0.35 | VT/RD | 3392 | I | — | Driver Mirror Position Sensor 5V Reference | 17 | 0.35 | VT/RD | 3392 | II | — |
| 18 | 0.5 | WH/L-GN | 3412 | I | — | Driver Mirror Motor Fold In Control | 18 | 0.5 | WH/L-GN | 3412 | II | — |

## X600 Passenger Door Harness to Body Harness





### Connector Part Information

Harness Type: Passenger Door

OEM Connector: 13600509

Service Connector: Service by Harness - See Part Catalog

Description: 41-Way F 4.8 Timer, 1.5 DSQ Series

### Connector Part Information

Harness Type: Body

OEM Connector: 13946876

Service Connector: 13587760

Description: 41-Way M 1.5, 2.8 Series (GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-42 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | 13575556 | J-35616-34 (YE) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| IV | 13575593 | J-35616-34 (YE) | J-38125-560 | 964265-2 | Lear 28 | C | A |
| V | 13575775 | J-35616-34 (YE) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| VI | 13575776 | J-35616-34 (YE) | J-38125-560 | 964265-2 | Lear 28 | E | 2 |
| VII | 13575776 | J-35616-34 (YE) | J-38125-560 | 964265-2 | Lear 28 | E | C |
| VIII | 13575857 | J-35616-42 (RD) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| IX | 13582220 | J-35616-14 (GN) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

### *X600 Passenger Door Harness to Body Harness*

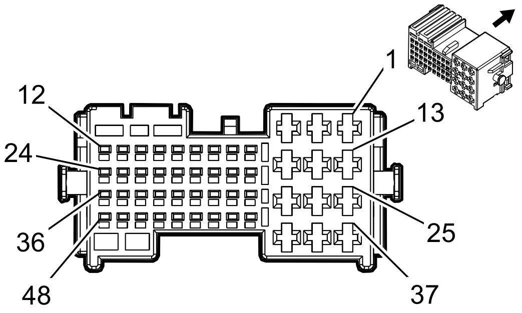
## [illegible] Passenger Door Harness to Body Harness

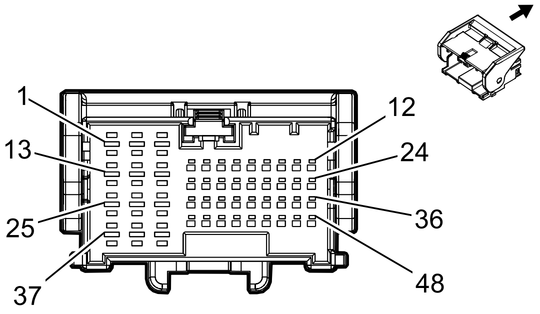
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.5 | RD/WH | 1340 | II | — | Battery Positive Voltage | 1 | 2.5 | RD/WH | 1340 | VIII | — |
| 2 | 2.5 | BK | 1250 | II | — | Ground | 2 | 2.5 | BK | 1250 | IX | — |
| 3 | 0.5 | GY/L-GN | 5996 | I | — | Driver Outside Rear View Mirror Puddle Lamp Control | 3 | 0.5 | GY/L-GN | 5996 | VI | — |
| 4 | 0.5 | WH | 3398 | I | — | Passenger Mirror Motor Common Control | 4 | 0.5 | WH | 3398 | VI | — |
| 5 - 6 | — | — | — | — | — | Not Occupied | 5 - 6 | — | — | — | — | — |
| 7 | 0.5 | WH/L-GN | 3412 | I | — | Driver Mirror Motor Fold In Control | 7 | 0.5 | WH/L-GN | 3412 | VI | — |
| 8 | 0.5 | GY/WH | 3411 | I | — | Driver Mirror Motor Fold Out Control | 8 | 0.5 | GY/WH | 3411 | VI | — |
| 9 | 0.5 | WH/VT | 1430 | I | — | Exterior Courtesy Lamp Control | 9 | 0.5 | WH/VT | 1430 | VI | — |
| 10 | 1 | YE/BK | 117 | I | — | Right Front Speaker Signal (-) 1<br>Right Front Speaker Signal (-) 1 | 10 | 0.75<br>1 | YE/BK<br>YE/BK | 117<br>117 | VII<br>IV | UQ3/UQ5<br>UQ3 |
| 11 | 0.5 | GY/BN | 309 | I | — | Right Park Lamp Control | 11 | 0.5 | GY/BN | 309 | VI | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 12 | 0.35 | GY | 746 | I | — | Right Front Door Ajar Switch Signal | 12 | 0.35 | GY | 746 | V | — |
| 13 | — | — | — | — | — | Not Occupied | 13 | — | — | — | — | — |
| 14 | 0.5 | OG/L-GN | 2134 | I | — | Right Front Side Impact Sensing Module Signal | 14 | 0.35 | BN/OG | 2134 | V | — |
| 15 | 0.5 | BK/OG | 6629 | I | — | Right Front Side Impact Sensing Module Low Reference | 15 | 0.35 | BK/OG | 6629 | V | — |
| 16 | — | — | — | — | — | Not Occupied | 16 | — | — | — | — | — |
| 17 | 0.35 | BN/VT | 245 | I | — | Passenger Door Lock Switch Unlock Control | 17 | 0.35 | BN/VT | 245 | V | — |
| 18 | 0.35 | YE/BK | 244 | I | — | Passenger Door Lock Switch Lock Control | 18 | 0.35 | YE/VT | 244 | V | — |
| 19 | 0.75 | BN/YE | 294 | I | — | Door Lock Actuator Unlock Control | 19 | 0.75 | BN/YE | 294 | VII | — |
| 20 | 0.75 | GY | 295 | I | — | Door Lock Actuator Lock Control | 20 | 0.75 | GY | 295 | VII | — |
| 21 | 0.5 | BK/D-BU | 61 | I | — | Outside Ambient Temperature Sensor Low Reference | 21 | 0.35 | BK/D-BU | 61 | V | — |
| 22 | — | — | — | — | — | Not Occupied | 22 | — | — | — | — | — |
| 23 | 1 | YE | 200 | I | — | Right Front Speaker Control (+) 1<br>Right Front Speaker Control (+) 1 | 23 | 0.75<br>1 | YE<br>YE | 200<br>200 | VII<br>III | UQ3/UQ5<br>UQ3 |
| | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 24 | 0.5 | D-BU/GY | 636 | I | — | Outside Ambient Air Temperature Sensor Signal | 24 | 0.35 | D-BU/GY | 636 | V | — |
| 25 - 28 | — | — | — | — | — | Not Occupied | 25 - 28 | — | — | — | — | — |
| 29 | 0.35 | YE | 6817 | I | — | LED Backlight Dimming Control | 29 | 0.5 | YE | 6817 | VI | — |
| 30 | 0.35 | WH/YE | 7557 | I | — | LED Ambient Lighting Control 1 | 30 | 0.35 | WH/YE | 7557 | V | — |
| 31 | 0.5 | BN/OG | 2267 | I | — | Mirror Heating Element Control | 31 | 0.5 | BN/YE | 2267 | VI | — |
| 32 | — | — | — | — | — | Not Occupied | 32 | — | — | — | — | — |
| 33 | 0.5 | L-GN/YE | 6134 | I | — | Local Interconnect Network Serial Data Bus 3 | 33 | 0.5 | L-GN/YE | 6134 | VI | — |
| 34 | 0.5 | L-GN/WH | 7530 | I | — | Local Interconnect Network Serial Data Bus 8 | 34 | 0.5 | L-GN/WH | 7530 | VI | — |
| 35 | — | — | — | — | — | Not Occupied | 35 | — | — | — | — | — |
| 36 | 0.5 | L-GN/BK | 3396 | I | — | Passenger Mirror Motor Right (+) Left (-) Control | 36 | 0.5 | L-GN/BK | 3396 | VI | — |
| 37 | — | — | — | — | — | Not Occupied | 37 | — | — | — | — | — |
| 38 | 0.5 | YE/VT | 3397 | I | — | Passenger Mirror Motor Up (+) Down (-) Control | 38 | 0.5 | YE/VT | 3397 | VI | — |
| 39 - 40 | — | — | — | — | — | Not Occupied | 39 - 40 | — | — | — | — | — |
| 41 | 0.5 | L-GN/VT | 1315 | I | — | Right Front Turn Signal Lamp Control | 41 | 0.75 | L-GN/VT | 1315 | VII | — |

## X605 Passenger Door Harness to Passenger Door Trim Harness





## Connector Part Information

Harness Type: Passenger Door

OEM Connector: 13889713

Service Connector: Service by Harness - See Part Catalog

Description: 48-Way F 1.2 MCON, 2.8 MCP Series

## Connector Part Information

Harness Type: Passenger Door Trim

OEM Connector: 15512031

Service Connector: Service by Harness - See Part Catalog

Description: 48-Way M 1.2 MCON, 2.8 MCP Series (BK)

## *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-16 (LT GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-35 (VT) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | Not Required | J-35616-13 (BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| IV | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

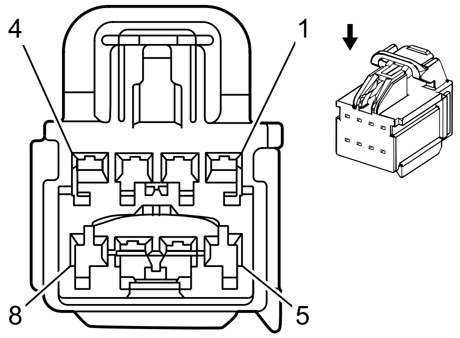
## *X605 Passenger Door Harness to Passenger Door Trim Harness*

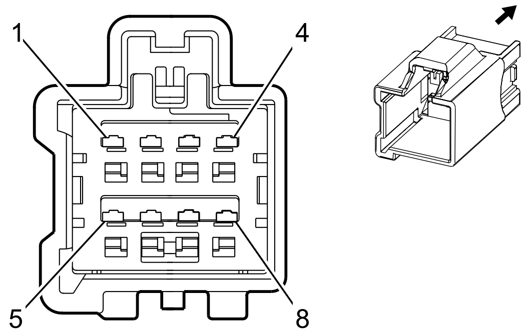
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.35 | YE | 6817 | II | — | LED Backlight Dimming Control | 1 | 0.35 | YE | 6817 | IV | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0.35 | WH/YE | 7557 | II | — | LED Ambient Lighting Control 1 | 2 | 0.35 | WH/YE | 7557 | IV | — |
| 3 - 5 | — | — | — | — | — | Not Occupied | 3 - 5 | — | — | — | — | — |
| 6 | 0.5 | YE/VT | 3397 | I | — | Passenger Mirror Motor Up (+) Down (-) Control | 6 | 0.75 | YE/VT | 3397 | III | — |
| 7 | 0.5 | WH | 3398 | I | — | Passenger Mirror Motor Common Control | 7 | 0.75 | WH | 3398 | III | — |
| 8 | 0.5 | YE/GY | 3413 | I | — | Passenger Mirror Motor Fold Out Control | 8 | 0.75 | YE/WH | 3413 | III | — |
| 9 | 0.5 | D-BU/GY | 3414 | I | — | Passenger Mirror Motor Fold In Control | 9 | 0.75 | D-BU/GY | 3414 | III | — |
| 10 | 0.35 | D-BU/YE | 3401 | I | — | Passenger Mirror Position Sensor Up (+) Down (-) Signal | 10 | 0.35 | D-BU/YE | 3401 | III | — |
| 11 | 0.5 | L-GN/BK | 3396 | I | — | Passenger Mirror Motor Right (+) Left (-) Control | 11 | 0.75 | L-GN/BK | 3396 | III | — |
| 12 | 0.35 | YE/RD | 3399 | I | — | Passenger Mirror Position Sensor 5V Reference | 12 | 0.35 | YE/RD | 3399 | III | — |
| 13 | 0.35 | VT/WH | 3403 | II | — | Passenger Mirror Position Sensor Left (-) Right (+) Signal | 13 | 0.35 | VT/WH | 3403 | IV | — |
| 14 | 0.35 | BK/L-GN | 3400 | II | — | Passenger Mirror Position Sensor Low Reference | 14 | 0.35 | BK/L-GN | 3400 | IV | — |
| 15 | 2.5 | BK | 1250 | II | — | Ground | 15 | 2.5 | BK | 1250 | IV | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 16 | — | — | — | — | — | Not Occupied | 16 | — | — | — | — | — |
| 17 | 0.5 | BK | 1250 | I | — | Ground | 17 | 0.35 | BK | 1250 | III | — |
| 18 - 24 | — | — | — | — | — | Not Occupied | 18 - 24 | — | — | — | — | — |
| 25 | 2.5 | L-GN/GY | 3387 | II | — | Power Window Motor Passenger Up Control | 25 | 2.5 | L-GN/GY | 3387 | IV | — |
| 26 | 2.5 | YE/D-BU | 3388 | II | — | Power Window Motor Passenger Down Control | 26 | 2.5 | YE/D-BU | 3388 | IV | — |
| 27 | 2.5 | RD/WH | 1340 | II | — | Battery Positive Voltage | 27 | 2.5 | RD/WH | 1340 | IV | — |
| 28 - 35 | — | — | — | — | — | Not Occupied | 28 - 35 | — | — | — | — | — |
| 36 | 0.5 | L-GN/YE | 6134 | I | — | Local Interconnect Network Serial Data Bus 3 | 36 | 0.5 | L-GN/YE | 6134 | III | — |
| 37 | 0.5 | L-GN/WH | 7530 | II | — | Local Interconnect Network Serial Data Bus 8 | 37 | 0.5 | L-GN/WH | 7530 | IV | — |
| 38 - 45 | — | — | — | — | — | Not Occupied | 38 - 45 | — | — | — | — | — |
| 46 | 0.35 | GY | 746 | I | — | Right Front Door Ajar Switch Signal | 46 | 0.35 | GY | 746 | III | — |
| 47 | 0.35 | BN/VT | 245 | I | — | Passenger Door Lock Switch Unlock Control | 47 | 0.35 | BN/VT | 245 | III | — |
| 48 | 0.35 | YE/BK | 244 | I | — | Passenger Door Lock Switch Lock Control | 48 | 0.35 | YE/VT | 244 | III | — |

## X606 Passenger Door Trim Harness to Passenger Door Harness





### Connector Part Information

Harness Type: Passenger Door Trim

OEM Connector: 10846802

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F 1.5 YESC Kaizen Series (L-GY)

### Connector Part Information

Harness Type: Passenger Door

OEM Connector: 10847035

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way M 1.5 YESC Kaizen Series (L-GY)

### *Terminal Part Information*

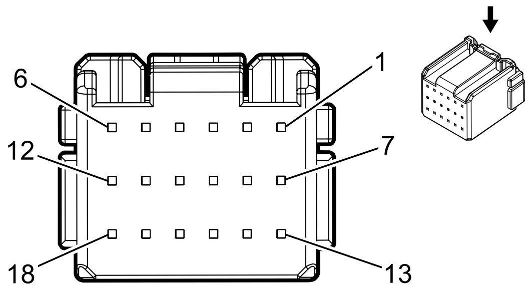
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

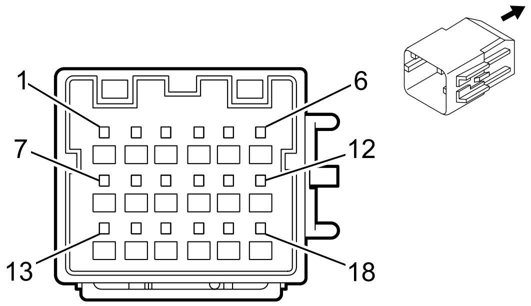
### *X606 Passenger Door Trim Harness to Passenger Door Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 - 3 | — | — | — | — | — | Not Occupied | 1 - 3 | — | — | — | — | — |
| 4 | 0.35 | YE/VT | 244 | I | — | Passenger Door Lock Switch Lock Control | 4 | 0.35 | YE/BK | 244 | II | — |
| 5 | 0.35 | BN/VT | 245 | I | — | Passenger Door Lock | 5 | 0.35 | BN/VT | 245 | II | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.35 | | | | | Switch Unlock Control | 5 | 0.35 | | | | |
| 6 | 0.35 | YE | 6817 | I | — | LED Backlight Dimming Control | 6 | 0.35 | YE | 6817 | II | — |
| 7 | 0.35 | BK | 1250 | I | — | Ground | 7 | 0.5 | BK | 1250 | II | — |
| 8 | — | — | — | — | — | Not Occupied | 8 | — | — | — | — | — |

## X610 Passenger Door Trim Harness to Passenger Door Harness





### Connector Part Information

Harness Type: Passenger Door Trim

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 18-Way F

### Connector Part Information

Harness Type: Passenger Door

OEM Connector: 13888973

Service Connector: Service by Harness - See Part Catalog

Description: 18-Way M 0.64 Series (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-65B (LT BU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X610 Passenger Door Trim Harness to Passenger Door Harness*

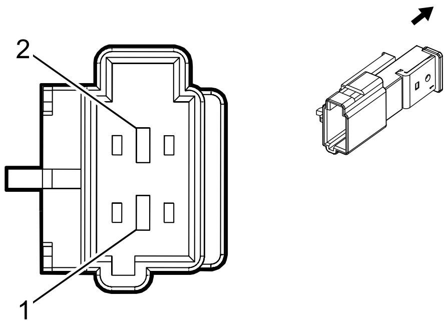
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5<br>0.5 | GY/L-GN<br>GY/BN | 5996<br>309 | I<br>I | DL3<br>DQS/DPN | Driver Outside Rear View Mirror Puddle Lamp Control<br>Right Park Lamp Control | 1 | 0.5<br>0.5 | GY/L-GN<br>GY/BN | 5996<br>309 | II<br>II | DL3<br>DQS/DPN |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 2 | 0.5 | WH/VT | 1430 | I | — | Exterior Courtesy Lamp Control | 2 | 0.5 | WH/VT | 1430 | II | — |
| 3 | 0.35 | BK/L-GN | 3400 | I | — | Passenger Mirror Position Sensor Low Reference | 3 | 0.35 | BK/L-GN | 3400 | II | — |
| 4 | 0.5 | GY/WH | 3411 | I | &DL3/DL8/DPN/DQS/DR4-A45 | Driver Mirror Motor Fold Out Control | 4 | 0.5 | GY/WH | 3411 | II | &DL3/DL8/DPN/DQS/DR4-A45 |
| | 0.5 | YE/GY | 3413 | I | A45+DL3/DQS | Passenger Mirror Motor Fold Out Control | | 0.5 | YE/GY | 3413 | II | A45+DL3/DQS |
| 5 | 0.5 | BK | 1250 | I | — | Ground | 5 | 0.5 | BK | 1250 | II | — |
| 6 | — | — | — | — | — | Not Occupied | 6 | — | — | — | — | — |
| 7 | 0.35 | VT/WH | 3403 | I | — | Passenger Mirror Position Sensor Left (-) Right (+) Signal | 7 | 0.35 | VT/WH | 3403 | II | — |
| 8 | 0.5 | BN/OG | 2267 | I | — | Mirror Heating Element Control | 8 | 0.5 | BN/OG | 2267 | II | — |
| 9 | 0.5 | YE/VT | 3397 | I | — | Passenger Mirror Motor Up (+) Down (-) Control | 9 | 0.5 | YE/VT | 3397 | II | — |
| 10 | 0.5 | L-GN/BK | 3396 | I | — | Passenger Mirror Motor Right (+) Left (-) Control | 10 | 0.5 | L-GN/BK | 3396 | II | — |
| 11 | 0.5 | BK | 1250 | I | — | Ground | 11 | 0.5 | BK | 1250 | II | — |
| 12 | 0.5 | WH | 3398 | I | — | Passenger Mirror Motor Common Control | 12 | 0.5 | WH | 3398 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 13 | 0.5 | L-GN/VT | 1315 | I | — | Right Front Turn Signal Lamp Control | 13 | 0.5 | L-GN/VT | 1315 | II | — |
| 14 | 0.35 | D-BU/YE | 3401 | I | — | Passenger Mirror Position Sensor Up (+) Down (-) Signal | 14 | 0.35 | D-BU/YE | 3401 | II | — |
| 15 | 0.5 | D-BU/GY | 636 | I | — | Outside Ambient Air Temperature Sensor Signal | 15 | 0.5 | D-BU/GY | 636 | II | — |
| 16 | 0.5 | BK/D-BU | 61 | I | — | Outside Ambient Temperature Sensor Low Reference | 16 | 0.5 | BK/D-BU | 61 | II | — |
| 17 | 0.35 | YE/RD | 3399 | I | — | Passenger Mirror Position Sensor 5V Reference | 17 | 0.35 | YE/RD | 3399 | II | — |
| 18 | 0.5<br>0.5 | D-BU/GY<br>WH/L-GN | 3414<br>3412 | I<br>I | A45+DL3/DQS<br>DL3/DL8/DPN/DQS/DR4-A45 | Passenger Mirror Motor Fold In Control<br>Driver Mirror Motor Fold In Control | 18 | 0.5<br>0.5 | D-BU/GY<br>WH/L-GN | 3414<br>3412 | II<br>II | A45+DL3/DQS<br>DL3/DL8/DPN/DQS/DR4-A45 |

# X611 Outside Rear View Mirror Harness to Passenger Door Harness

—



## Connector Part Information

Harness Type: Outside Rear View Mirror

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way F

## Connector Part Information

Harness Type: Passenger Door

OEM Connector: 13662506

Service Connector: Service by Harness - See Part Catalog

Description: 2-Way M 1.6 Timer Series (BK)

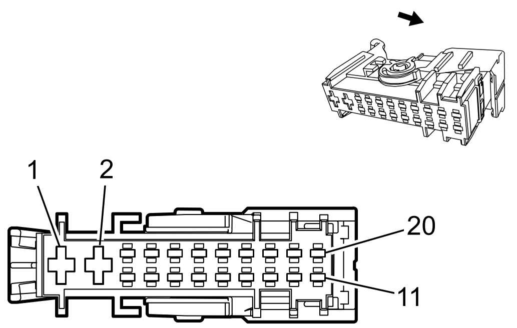
## *Terminal Part Information*

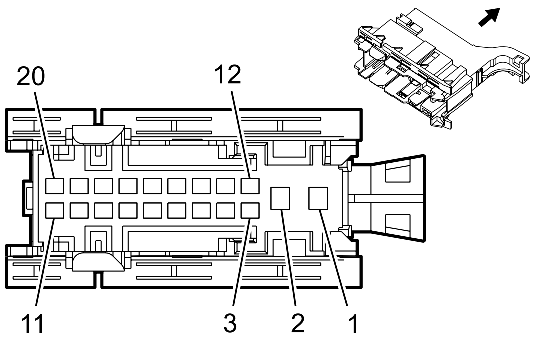
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-34 (YE) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

## *X611 Outside Rear View Mirror Harness to Passenger Door Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | D-BU/GY | 636 | I | — | Outside Ambient Air Temperature Sensor Signal | 1 | 0.5 | D-BU/GY | 636 | II | — |
| 2 | 0.5 | BK/D-BU | 61 | I | — | Outside Ambient Temperature Sensor Low Reference | 2 | 0.5 | BK/D-BU | 61 | II | — |

## X700 Left Rear Door Harness to Body Harness





### Connector Part Information

Harness Type: Left Rear Door

OEM Connector: 13600493

Service Connector: Service by Harness - See Part Catalog

Description: 20-Way F 1.5 DSQ, 4.8 Timer Series (GY)

### Connector Part Information

Harness Type: Body

OEM Connector: 15539528

Service Connector: 19329469

Description: 20-Way M 1.5, 5.8 TTS Series (D-GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-42 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | 13575556 | J-35616-34 (YE) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| IV | 13575706 | J-35616-42 (RD) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| V | 13575775 | J-35616-34 (YE) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| VI | 13575776 | J-35616-34 (YE) | J-38125-560 | 964265-2 | Lear 28 | E | 2 |
| VII | 13575776 | J-35616-34 (YE) | J-38125-560 | 964265-2 | Lear 28 | E | C |
| VIII | 13575857 | J-35616-42 (RD) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |

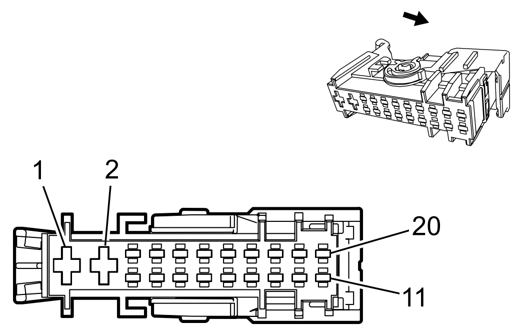
### *X700 Left Rear Door Harness to Body Harness*

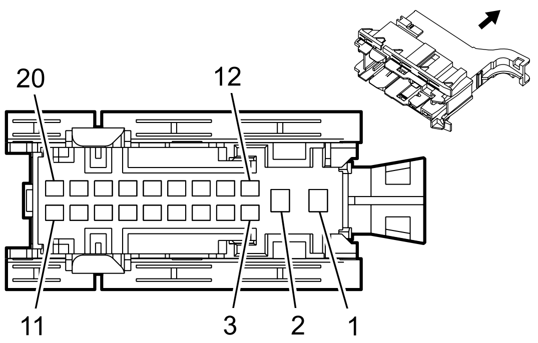
| Pin | Size | Color | Circuit | Terminal Type | Option | Function | Pin | Size | Color | Circuit | Terminal Type | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

|  |  |  |  | ID |  |  |  |  |  |  | ID |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.5 | RD/D-BU | 1842 | II | — | Battery Positive Voltage | 1 | 2.5 | RD/D-BU | 1842 | VIII | — |
| 2 | 3 | BK | 1150 | II | — | Ground | 2 | 4 | BK | 1150 | IV | — |
| 3 - 6 | — | — | — | — | — | Not Occupied | 3 - 6 | — | — | — | — | — |
| 7 | 1 | L-GN | 199 | I | — | Left Rear Speaker Control (+)<br>Left Rear Speaker Control (+) | 7 | 0.5<br>1 | L-GN<br>L-GN | 199<br>199 | VI<br>III | UQ3<br>UQA/UQG |
| 8 | — | — | — | — | — | Not Occupied | 8 | — | — | — | — | — |
| 9 | 0.75 | WH/D-BU | 3266 | I | — | Child Security Lock Motor Lock Control | 9 | 0.75 | WH/D-BU | 3266 | VII | — |
| 10 | 0.75 | BN/YE | 294 | I | — | Door Lock Actuator Unlock Control | 10 | 0.75 | BN/YE | 294 | VII | — |
| 11 | 0.75 | GY | 295 | I | — | Door Lock Actuator Lock Control | 11 | 0.75 | GY | 295 | VII | — |
| 12 - 15 | — | — | — | — | — | Not Occupied | 12 - 15 | — | — | — | — | — |
| 16 | 1 | L-GN/BK | 116 | I | — | Left Rear Speaker Signal (-)<br>Left Rear Speaker Signal (-) | 16 | 0.5<br>1 | L-GN/BK<br>L-GN/BK | 116<br>116 | VI<br>III | UQ3<br>UQA/UQG |
| 17 | 0.5 | OG/D-BU | 6620 | I | — | Left Middle Side Impact Sensing Module Signal | 17 | 0.35 | OG/D-BU | 6620 | V | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 0.5 | BK/OG | 6621 | I | — | Left Middle Side Impact Sensing Module Low Reference | 18 | 0.35 | BK/OG | 6621 | V | — |
| 19 | 0.35 | BN/WH | 3269 | I | — | Child Security Lock Motor Status Signal Left Rear | 19 | 0.35 | BN/WH | 3269 | V | — |
| 20 | 0.5 | L-GN/GY | 6135 | I | — | Local Interconnect Network Serial Data Bus 4 | 20 | 0.5 | L-GN/GY | 6135 | VI | — |

## X800 Right Rear Door Harness to Body Harness





### Connector Part Information

Harness Type: Right Rear Door

OEM Connector: 13600493

Service Connector: Service by Harness - See Part Catalog

Description: 20-Way F 1.5 DSQ, 4.8 Timer Series (GY)

### Connector Part Information

Harness Type: Body

OEM Connector: 15539528

Service Connector: 19329469

Description: 20-Way M 1.5, 5.8 TTS Series (D-GY)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-14 (GN) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-42 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | 13575556 | J-35616-34 (YE) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| IV | 13575775 | J-35616-34 (YE) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |
| V | 13575776 | J-35616-34 (YE) | J-38125-560 | 964265-2 | Lear 28 | E | 2 |
| VI | 13575776 | J-35616-34 (YE) | J-38125-560 | 964265-2 | Lear 28 | E | C |
| VII | 13575857 | J-35616-42 (RD) | J-38125-36 | Not Available | Not Available | Not Available | Not Available |
| VIII | 13582220 | J-35616-14 (GN) | J-38125-560 | Not Available | Not Available | Not Available | Not Available |

### *X800 Right Rear Door Harness to Body Harness*

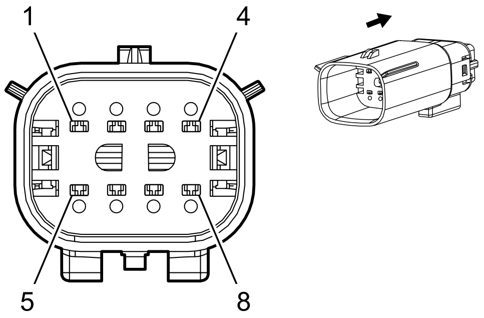
| Pin | Size | Color | Circuit | Terminal Type | Option | Function | Pin | Size | Color | Circuit | Terminal Type | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|

|  |  |  |  | ID |  |  |  |  |  |  | ID |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 2.5 | RD/WH | 1340 | II | — | Battery Positive Voltage | 1 | 2.5 | RD/WH | 1340 | VII | — |
| 2 | 2.5 | BK | 1250 | II | — | Ground | 2 | 2.5 | BK | 1250 | VIII | — |
| 3 - 6 | — | — | — | — | — | Not Occupied | 3 - 6 | — | — | — | — | — |
| 7 | 1 | WH | 46 | I | — | Right Rear Speaker Control (+)<br>Right Rear Speaker Control (+) | 7 | 0.5<br>1 | WH<br>WH | 46<br>46 | V<br>III | UQ3<br>UQS/UQG/UQH |
| 8 | — | — | — | — | — | Not Occupied | 8 | — | — | — | — | — |
| 9 | 0.75 | WH/D-BU | 3266 | I | — | Child Security Lock Motor Lock Control | 9 | 0.75 | WH/D-BU | 3266 | VI | — |
| 10 | 0.75 | BN/YE | 294 | I | — | Door Lock Actuator Unlock Control | 10 | 0.75 | BN/YE | 294 | VI | — |
| 11 | 0.75 | GY | 295 | I | — | Door Lock Actuator Lock Control | 11 | 0.75 | GY | 295 | VI | — |
| 12 - 15 | — | — | — | — | — | Not Occupied | 12 - 15 | — | — | — | — | — |
| 16 | 1 | D-BU/BK | 115 | I | — | Right Rear Speaker Signal (-)<br>Right Rear Speaker Signal (-) | 16 | 0.5<br>1 | D-BU/BK<br>D-BU/BK | 115<br>115 | V<br>III | UQ3<br>UQS/UQG/UQH |
| 17 | 0.5 | OG/VT | 6624 | I | — | Right Middle Side Impact Sensing Module Signal | 17 | 0.35 | OG/VT | 6624 | IV | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 18 | 0.5 | BK/OG | 6625 | I | — | Right Middle Side Impact Sensing Module Low Reference | 18 | 0.35 | BK/OG | 6625 | IV | — |
| 19 | 0.35 | GY/BK | 3268 | I | — | Child Security Lock Motor Status Signal Right Rear | 19 | 0.35 | GY/BK | 3268 | IV | — |
| 20 | 0.5 | L-GN/GY | 6135 | I | — | Local Interconnect Network Serial Data Bus 4 | 20 | 0.5 | L-GN/GY | 6135 | V | — |

## X900 Tailgate Harness to Chassis Harness

—



### Connector Part Information

Harness Type: Tailgate

OEM Connector: —

Service Connector: Service by Harness - See Part Catalog

Description: 8-Way F

### Connector Part Information

Harness Type: Chassis

OEM Connector: 15456955

Service Connector: 19300474

Description: 8-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

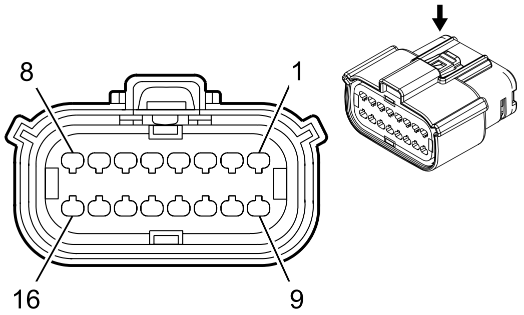
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | Not Available | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-3 (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

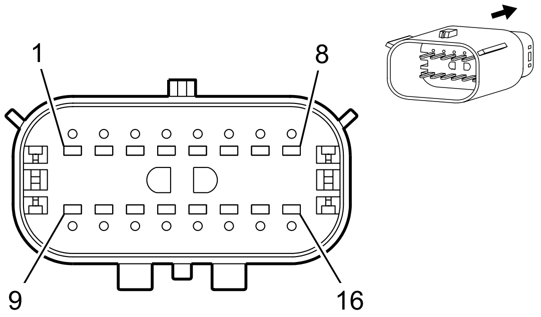
### *X900 Tailgate Harness to Chassis Harness*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.75 | GY | 5911 | I | — | Door Lock Actuator Lock Control 2 | 1 | 0.75 | GY | 5911 | II | — |
| 2 | 0.5 | L-GN | 24 | I | — | Backup Lamp Control | 2 | 0.5 | L-GN | 24 | II | — |
| 3 | 0.5 | GY/YE | 6972 | I | — | Camera Signal 2 + | 3 | 0.5 | GY/YE | 6972 | II | — |
| 4 | 0.5 | VT/L-GN | 1739 | I | — | Run/Crank Ignition 1 Voltage | 4 | 0.5 | VT/L-GN | 1739 | II | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 5 | 0.75 | BN/YE | 294 | I | — | Door Lock Actuator Unlock Control | 5 | 0.75 | BN/YE | 294 | II | — |
| 6 | 0.5 | BK | 6974 | I | — | Camera Low Reference | 6 | 0.5 | BK | 6974 | II | — |
| 7 | 0.5 | BK | 2550 | I | — | Ground | 7 | 0.5 | BK | 2550 | II | — |
| 8 | 0.5 | WH/D-BU | 6973 | I | — | Camera Signal 2 | 8 | 0.5 | WH/D-BU | 6973 | II | — |

## X901 Rear Bumper Harness to Chassis Harness





### Connector Part Information

Harness Type: Rear Bumper

OEM Connector: 33177214

Service Connector: Service by Harness - See Part Catalog

Description: 16-Way F 150 MX Series, Sealed (BK)

### Connector Part Information

Harness Type: Chassis

OEM Connector: 33162428

Service Connector: 19300393

Description: 16-Way M 150 MX Series, Sealed (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-2A (GY) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | 19119440 | J-35616-3 (GY) | J-38125-217 | Not Available | Not Available | Not Available | Not Available |

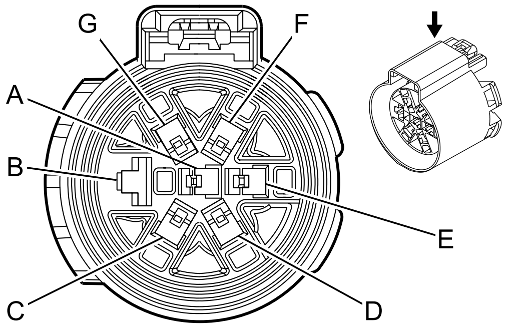
### *X901 Rear Bumper Harness to Chassis Harness*

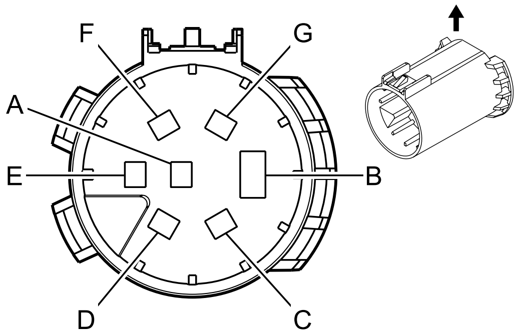
| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 1 | 0.5 | GY/BN | 309 | I | — | Right Park Lamp Control | 1 | 0.75 | GY/BN | 309 | II | — |
| 2 | 0.5 | VT/GY | 709 | I | — | Left Park Lamp Control | 2 | 0.75 | VT/GY | 709 | II | — |

| | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 3 | 0.5 | L-GN/YE | 6846 | I | — | Rear License Lamp Control | 3 | 0.5 | L-GN/YE | 6846 | II | — |
| 4 | 0.5 | L-GN/YE | 6846 | I | — | Rear License Lamp Control | 4 | 0.5 | L-GN/YE | 6846 | II | — |
| 5 | — | — | — | — | — | Not Occupied | 5 | — | — | — | — | — |
| 6 | 0.5 | BK/GY | 2379 | I | — | Object Sensor Low Reference | 6 | 0.5 | BK/GY | 2379 | II | — |
| 7 | 0.5 | BN/WH | 2374 | I | — | Object Sensor Control | 7 | 0.5 | BN/WH | 2374 | II | — |
| 8 | — | — | — | — | — | Not Occupied | 8 | — | — | — | — | — |
| 9 | 0.5 | YE | 2375 | I | — | Left Rear Corner Object Sensor Signal | 9 | 0.5 | YE | 2375 | II | — |
| 10 | 0.5 | YE/D-BU | 2376 | I | — | Left Rear Middle Object Sensor Signal | 10 | 0.5 | YE/D-BU | 2376 | II | — |
| 11 | 0.5 | YE/WH | 2377 | I | — | Right Rear Middle Object Sensor Signal | 11 | 0.5 | YE/WH | 2377 | II | — |
| 12 | 0.5 | YE/VT | 2378 | I | — | Right Rear Corner Object Sensor Signal | 12 | 0.5 | YE/VT | 2378 | II | — |
| 13 | 0.5 | BK | 1750 | I | — | Ground | 13 | 0.5 | BK | 1750 | II | — |
| 14 | 0.5 | BK | 1750 | I | — | Ground | 14 | 0.5 | BK | 1750 | II | — |

|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 15 | 0.5 | BK | 1750 | I | — | Ground | 15 | 0.5 | BK | 1750 | II | — |
| 16 | 0.5 | BK | 1750 | I | — | Ground | 16 | 0.5 | BK | 1750 | II | — |

# X950 Chassis Harness to Backup Alarm Harness (8S3)





## Connector Part Information

Harness Type: Chassis

OEM Connector: 13857223

Service Connector: 13583927

Description: 7-Way F 280, 630 Metri-Pack Series, Sealed (BK)

## Connector Part Information

Harness Type: Back up Alarm

OEM Connector: 15317327

Service Connector: Service by Harness - See Part Catalog

Description: 7-Way M 280 Metri-Pack Series (BK)

## *Terminal Part Information*

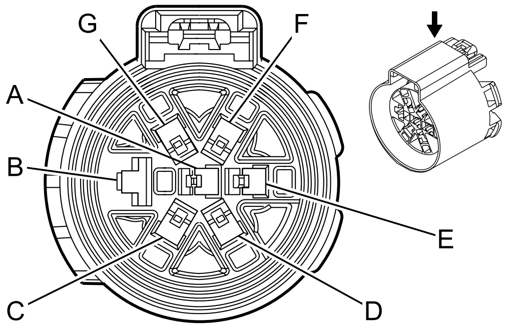
| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-42 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | Not Required | J-35616-43 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| IV | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

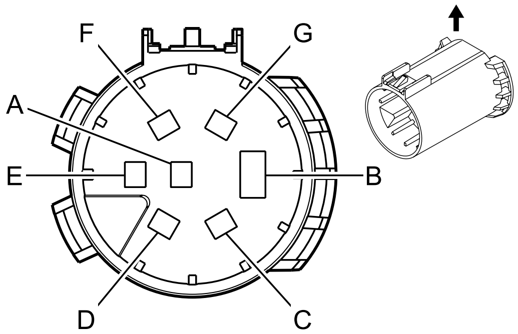
## *X950 Chassis Harness to Backup Alarm Harness (8S3)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | — | — | — | — | — | Trailer Backup Lamp Control | A | 1 | L-GN | 1624 | IV | — |

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| B | 5 | WH | 22 | I | — | Trailer Ground | B | 5 | WH | 22 | III | — |
| C | — | — | — | — | — | Trailer Auxiliary Control | C | 3 | D-BU | 47 | IV | — |
| D | — | — | — | — | — | Right Rear Trailer Stop/Turn Lamp Control | D | 0.8 | D-GN | 1619 | IV | — |
| E | — | — | — | — | — | Battery Positive Voltage | E | 3 | RD/BK | 742 | IV | — |
| F | — | — | — | — | — | Trailer Park Lamp Control | F | 1 | BN | 2109 | IV | — |
| G | — | — | — | — | — | Left Rear Trailer Stop/Turn Lamp Control | G | 0.8 | YE | 1618 | IV | — |

## X950 Chassis Harness to Camper Harness (UY2)





### Connector Part Information

Harness Type: Chassis

OEM Connector: 13857223

Service Connector: 13583927

Description: 7-Way F 280, 630 Metri-Pack Series, Sealed (BK)

### Connector Part Information

Harness Type: Camper

OEM Connector: 15317327

Service Connector: Service by Harness - See Part Catalog

Description: 7-Way M 280 Metri-Pack Series (BK)

### *Terminal Part Information*

| Terminal Type ID | Terminated Lead | Diagnostic Test Probe | Terminal Removal Tool | Service Terminal | Tray Name | Core Crimp | Insulation Crimp |
|---|---|---|---|---|---|---|---|
| I | Not Required | J-35616-42 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| II | Not Required | J-35616-4A (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| III | Not Required | J-35616-43 (RD) | No Tool Required | Not Required | Not Required | Not Required | Not Required |
| IV | Not Required | J-35616-5 (PU) | No Tool Required | Not Required | Not Required | Not Required | Not Required |

### *X950 Chassis Harness to Camper Harness (UY2)*

| Pin | Size | Color | Circuit | Terminal Type ID | Option | Function | Pin | Size | Color | Circuit | Terminal Type ID | Option |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| A | 0.75 | WH/L-GN | 1624 | II | — | Trailer Backup Lamp Control | A | 0.75 | WH/L-GN | 1624 | IV | — |

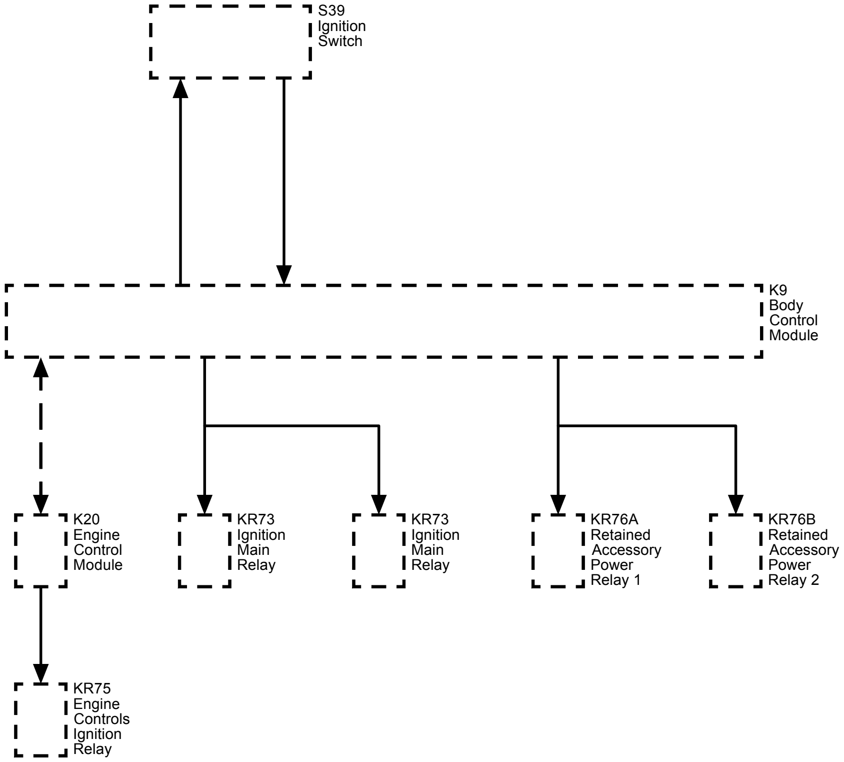
|  |  |  |  |  |  |  |  |  |  |  |  |  |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| B | 5 | WH | 22 | I | — | Trailer Ground | B | 6 | WH | 22 | III | — |
| C | 2.5 | D-BU | 47 | II | — | Trailer Auxiliary Control | C | 4 | D-BU | 47 | IV | -8S3 |
|  |  |  |  |  |  | Trailer Auxiliary Control |  | 2.5 | D-BU | 47 | IV | 8S3 |
| D | 0.75 | L-GN/VT | 1619 | II | — | Right Rear Trailer Stop/Turn Lamp Control | D | 0.75 | L-GN/VT | 1619 | IV | — |
| E | 4 | RD/L-GN | 742 | II | — | Battery Positive Voltage | E | 4 | RD/L-GN | 742 | IV | — |
| F | 1.5 | GY/BN | 2109 | II | — | Trailer Park Lamp Control | F | 1.5 | GY/BN | 2109 | IV | — |
| G | 0.75 | YE/GY | 1618 | II | — | Left Rear Trailer Stop/Turn Lamp Control | G | 0.75 | YE/GY | 1618 | IV | — |

# Description and Operation

## Power Mode Description and Operation

### Serial Data Power Mode Master

### Power Moding Description and Operation Block Diagram



Power to many of this vehicles circuits is controlled by the module that is designated the power mode master. This vehicles power mode master is the body control module (BCM). The BCM has multiple B+ circuits that feed into it. Each of those circuits are partitioned within the controller to drive certain outputs of the vehicle's body functions. An open or short in any one of the B+ circuits may induce multiple codes/or a section of non-functionality within the BCM with the rest of the BCM functioning normally. In this case it is useful to refer to the power distribution schematics to determine if the non-functional partition of the controller shares a common B+ circuit. The ignition switch is a low current switch with multiple discrete ignition switch signals to the power mode master for determination of the power mode that will be sent over the serial data circuits to the other modules that need this information. The power mode master will also activate relays and other direct outputs of the power mode master as needed. The power mode master determines which power mode (Off, Accessory, Run, Crank Request) is required, and reports this information to other modules via serial data. Modules which have switched voltage inputs may operate in a default mode if the power mode serial data message does not match what the individual module can see from its own connections.

The power mode master receives ignition switch signals to identify the operators desired power mode. The Power Mode Parameter tables below illustrate the correct state of these input parameters (circuits) in correspondence to the ignition switch position:

### *Power Mode Parameters*

| Ignition Switch Position | Power Mode Transmitted | Ign. Off/Run/Crank (Off/Run Crank Voltage Circuit) | Ignition Accessory/Run (Accessory Voltage Circuit) | Ignition Run/Crank (Ignition 1 Voltage Circuit) |
|---|---|---|---|---|
| Off Key Out | Off | Key Out / ACC | Inactive | Inactive |
| Off Key IN | Off | Key In / Off | Inactive | Inactive |

| | | | | |
|---|---|---|---|---|
| Accessory | Accessory | Key Out / ACC | Active | Inactive |
| Run | Run | Run | Active | Active |
| Start | Crank Request | Crank | Inactive | Active |

### Relay Controlled Power Mode

The BCM uses the discrete ignition switch inputs Off/Run/Crank Voltage, Accessory Voltage, and Ignition 1 Voltage, to distinguish the correct power mode. The BCM, after determining the desired power mode, will activate the appropriate relays for that power mode.

The retained accessory power relay 1 and retained accessory power relay 2 remain on for a timed period after the Ignition key is removed. Refer to Retained Accessory Power Description and Operation for more information on the retained accessory power function.

### Battery Saver Mode (Transport Mode)

Battery saver mode (transport mode) reduces the parasitic load of some modules during overseas shipment or during vehicle storage conditions. This improves the drain time on the battery (up to 70 days without the battery going dead). When a vehicle is in transport/storage, some features may have reduced functionality while in the battery saver mode, such as disabling keyless entry, afterblow, and content theft features. Battery saver mode is initiated by turning on the hazard flashers, applying the brake pedal, and then turning the ignition key to the start position or pushing the ignition mode switch with the foot on the brake for greater than 15 seconds. The mode is disengaged by repeating the previous process. The driver information center (if equipped) will display Transport Mode is On when battery saver mode is enabled and Transport Mode is Off when battery saver mode is disabled. For vehicles not equipped with a driver information center, the battery indicator light will constantly flash on the Instrument Cluster when battery saver mode is enabled. This feature can be used as many times as necessary if the vehicle is to be stored for an extended period of time.

### BCM Awake/Sleep States

The BCM is able to control or perform all of the BCM functions in the awake state. The BCM enters the sleep state when active control or normal monitoring of system functions has stopped and a time limit has passed. The BCM must detect certain wake-up inputs before entering the awake state. The BCM monitors for these inputs during the sleep state.

The BCM will enter the awake state if any of the following wake-up inputs are detected:

- Activity on the serial data line
- Detection of a battery reconnect
- Any door open signal
- Headlamps ON
- Key-in-ignition
- Ignition ON
- Park lamps ON
- Keyless entry or remote start message

The BCM will enter a sleep state when all of the following conditions exist:

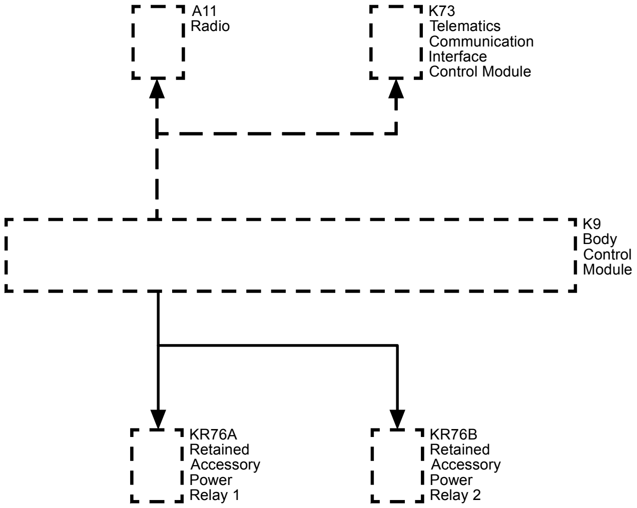
- The ignition switch is OFF, key out.
- Ignition OFF, transmitter is out of range
- No activity exists on the serial data line.
- No outputs are commanded.
- No delay timers are actively counting.
- No wake-up inputs are present.

If all these conditions are met, the BCM will enter a low power or sleep condition.

# Retained Accessory Power Description and Operation

## Retained Accessory Power

### RAP Description and Operation Block Diagram



The body control module (BCM) monitors the ignition switch position, battery condition, and each door ajar/open switch status to determine whether the retained accessory power should be initiated or terminated. Retained accessory power is controlled by two different methods; relay control and serial data. Some modules receive a retained accessory power message from the BCM over the serial data circuits. Serial data controlled retained accessory power is deactivated as required by their modules retained accessory power mode operation. Other subsystems are activated directly by the BCM through a relay. Components and systems that are active in retained accessory power are also activated anytime the ignition is any position other than OFF regardless of the door switch signals.

### Relay Controlled Retained Accessory Power

The BCM keeps the retained accessory power relay 1 and retained accessory power relay 2 energized during all power modes, except Off-Awake and Crank. The retained accessory power relay 1 and retained accessory power relay 2 are also energized for approximately 10 minutes after shutting the ignition OFF and removing the key, providing no door is opened.

Relay controlled retained accessory power will end when one of the following conditions is met:

- The BCM receives an input from any door ajar or open switch indicating the opening of any door after the ignition key is out of the ignition.

  **Note:** If the BCM is receiving any door ajar or open signal from those switches when the ignition key is turned OFF, retained accessory power will not initiate.

- The BCM internal timer for the retained accessory power expires after approximately 10 minutes.
- The BCM detects a decrease in battery capacity below a prescribed limit.

Systems powered by the retained accessory power relay 1 and retained accessory power relay 2 during the retained accessory power mode are as follows:

**Note:** The vehicle may not be equipped with all components as listed below.

- Accessory Power Receptacle
- Cigarette Lighter Receptacle
- Sunroof Control Module
- Sunroof Switch
- Sliding Rear Window Switch
- Mobile Device Wireless Charger Module

### Serial Data Controlled Retained Accessory Power

Retained accessory power systems controlled by serial data are as follows:

## Radio

Radio retained accessory power activation / termination is the same as relay operation with one exception; the only door switch that will turn off the radio during retained accessory power is the driver door open switch.

## Vehicle Communication Interface Module (VCIM) (Onstar®) (If Equipped)

VCIM RAP activation/termination is the same as radio operation with 1 exception; if there is an active call when the ignition key is turned off the VCIM will remain in RAP mode, and keep the radio in RAP mode until the call is terminated.

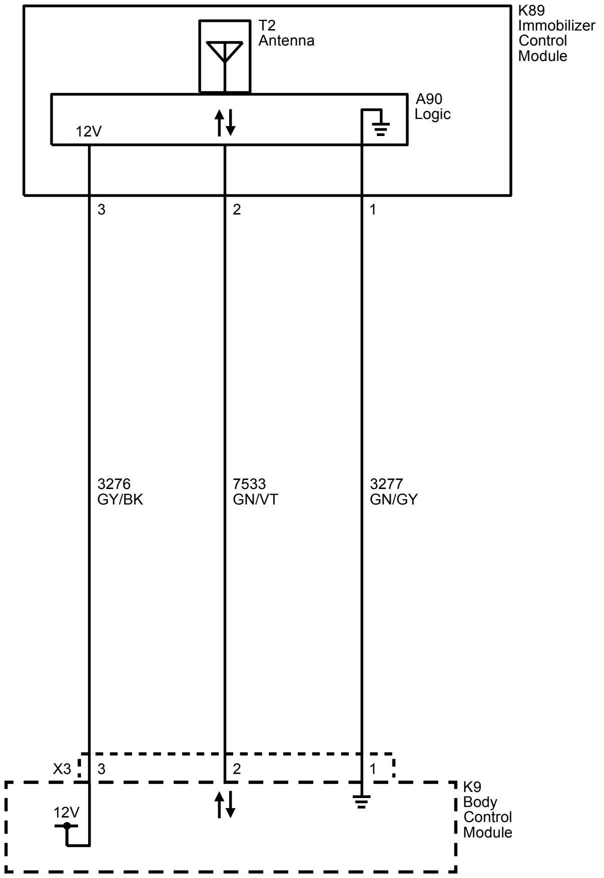
# Safety and Security

## Immobilizer

### Schematic and Routing Diagrams

### Immobilizer Schematics

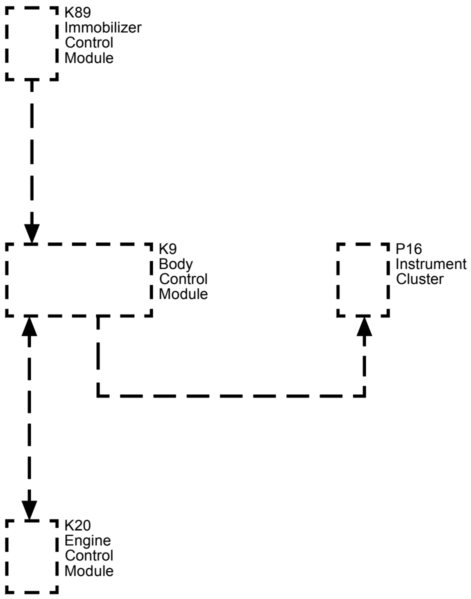
**Immobilizer**



K89
Immobilizer
Control
Module
T2
Antenna
A90
Logic
12V
3
2
1
3276
GY/BK
7533
GN/VT
3277
GN/GY
X3
3
2
1
12V
K9
Body
Control
Module

# Description and Operation

## Immobilizer Description and Operation



The immobilizer system functions are provided by the body control module (BCM) and the engine control module (ECM), as well as any control modules which store and report the environment identifier.

When an ignition key is inserted into the ignition lock cylinder and the ignition is switched ON, the transponder in the key is energized by the immobilizer coil surrounding the ignition lock cylinder. This immobilizer coil is part of the immobilizer control module. The transponder transmits a signal that contains its unique value, which is received by the BCM through the immobilizer coil. The BCM then compares this value to a value stored in memory. The BCM also monitors various control modules to determine if the stored environment identifiers match.

If both the environment identifier and the value received from the transponder match, the BCM will send the prerelease password via serial data to the ECM. If the encrypted code's unique value is incorrect or the environment identifier does not match, the BCM will send the start disable message to the ECM which will prevent the vehicle starter and fuel pump from operating.

When the ECM receives the BCM prerelease password, the ECM will challenge the password. The ECM sends this challenge to the BCM via serial data. Both the ECM and BCM perform a calculation on this challenge. If the BCM calculated response to the challenge equals the calculation performed by the ECM, the ECM will allow vehicle starting.

The components of the theft system are as follows:

- BCM
- ECM
- Immobilizer control module
- Ignition key
- Security indicator
- Various control modules which store and report the environment identifier

### Body Control Module (BCM)

The immobilizer system is an integral part of the BCM and is controlled internally within the BCM. The BCM can learn up to 8 keys (transponder values).

The BCM uses the following inputs:

- Environment identifier exchange with various modules
- Encrypted code from the vehicle key, received by the immobilizer control module

The BCM uses the following outputs:

- Prerelease password communication with ECM
- Challenge/response with ECM

When an ignition key is inserted into the ignition lock cylinder and the ignition is switched ON, the encrypted code in the key is energized by the immobilizer control module surrounding the ignition lock cylinder. The energized transponder transmits a signal that contains its unique value, which is received by the BCM. The BCM then compares this value to the learned key code stored in memory. The BCM then performs one of the following functions:

- If the encrypted code value matches the values stored in the BCM memory, the BCM will send the prerelease password to the ECM via serial data.
- If the encrypted code unique value does not match the value stored in the BCM, the BCM will send the start disable message to the ECM via serial data.
- If the BCM is unable to measure the ignition key encrypted code value, the BCM will not send any messages to the ECM.

### Engine Control Module (ECM)

When the ECM receives the BCM prerelease password, the ECM will challenge the password. The ECM sends this challenge to the BCM via the serial data circuit. Both the ECM and BCM perform a calculation on this challenge. If the calculated response from the BCM equals the calculation performed by the ECM, the ECM will allow vehicle starting.

The ECM will disable vehicle starting if any of the following immobilization conditions occur:

- The prerelease password is invalid.
- The start disable password is sent by the BCM.
- No passwords are received. There is no communication with the BCM.
- The BCM calculated response to the challenge does not equal the calculation performed by the ECM.

### Immobilizer Control Module

The immobilizer control module contains an immobilizer coil which surrounds the ignition cylinder. The coil passively powers the transponder located in the ignition key when the key is in the ignition. When powered, the key transmits its unique value to the immobilizer control module, which is then relayed to the BCM via a discrete serial data circuit. The immobilizer control module also receives B+ and ground from the BCM.

The immobilizer control module is used to:

1. Learn keys
2. To start the vehicle

### Ignition Key

Each ignition key contains a transponder with a unique encrypted value. The transponder's encrypted value is fixed and unable to be changed. The immobilizer system uses the ignition key transponder value to determine if a valid ignition key is being used to start the vehicle.

### Environment Identifier

Various modules throughout the vehicle learn a specific environment identifier during the module programming process. The environment identifier is learned by each individual module and matches the environment identifier stored in the BCM. Prior to starting after a battery disconnect, each of the modules which store a environment identifier will compare their identifier to that of the identifier stored in the BCM. If all the identifiers match, the engine starting process will continue. If the environment identifiers do not match, engine starting will be disabled.

### Security Indicator

The BCM will command the instrument cluster to illuminate the security indicator when the ignition is in the ON position to indicate a fault has occurred within the immobilizer system and when the engine starting is disabled.

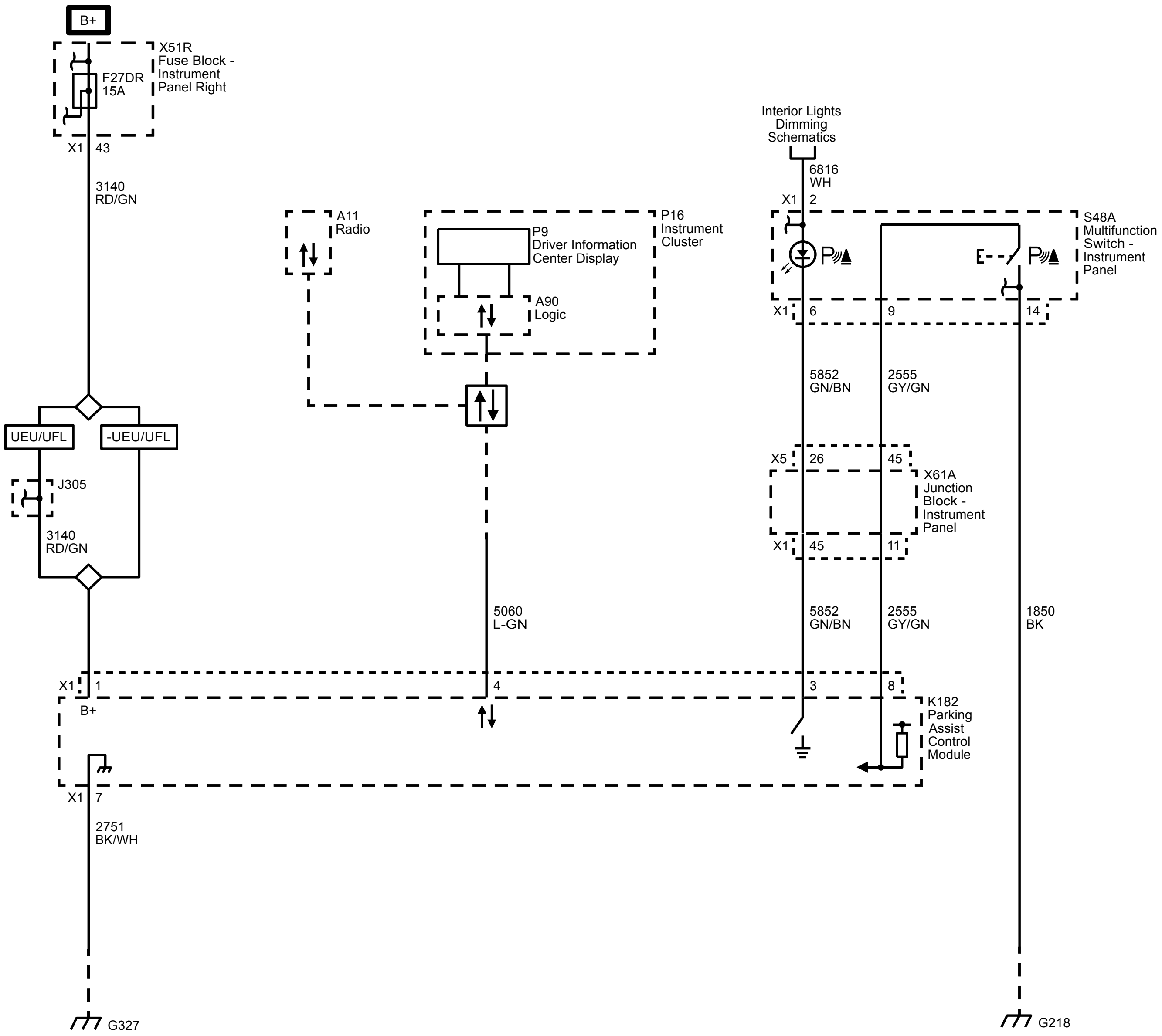
# Safety and Security

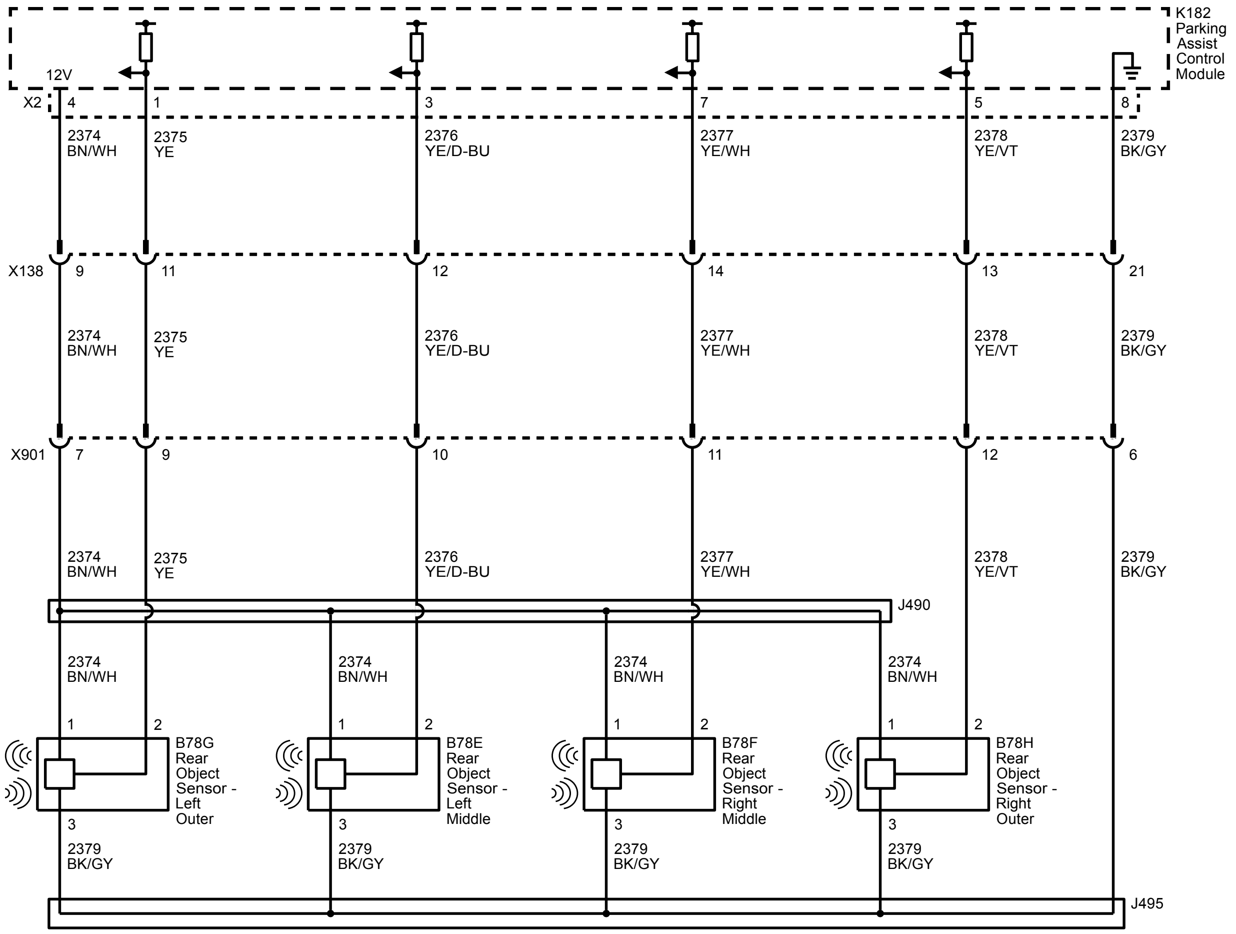
## Object Detection and Pedestrian Protection

### Schematic and Routing Diagrams

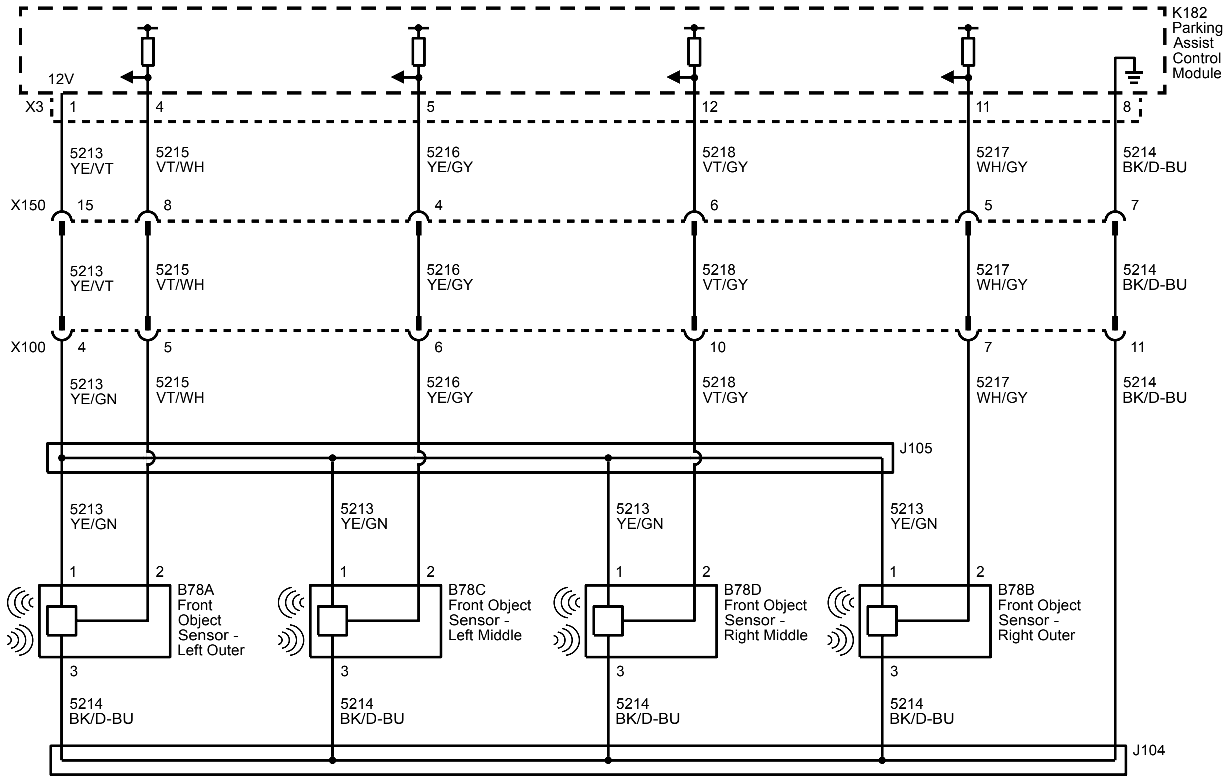
### Object Detection Schematics

#### Park Assist - Power, Ground, Serial Data and Control (UD7 or UD5)

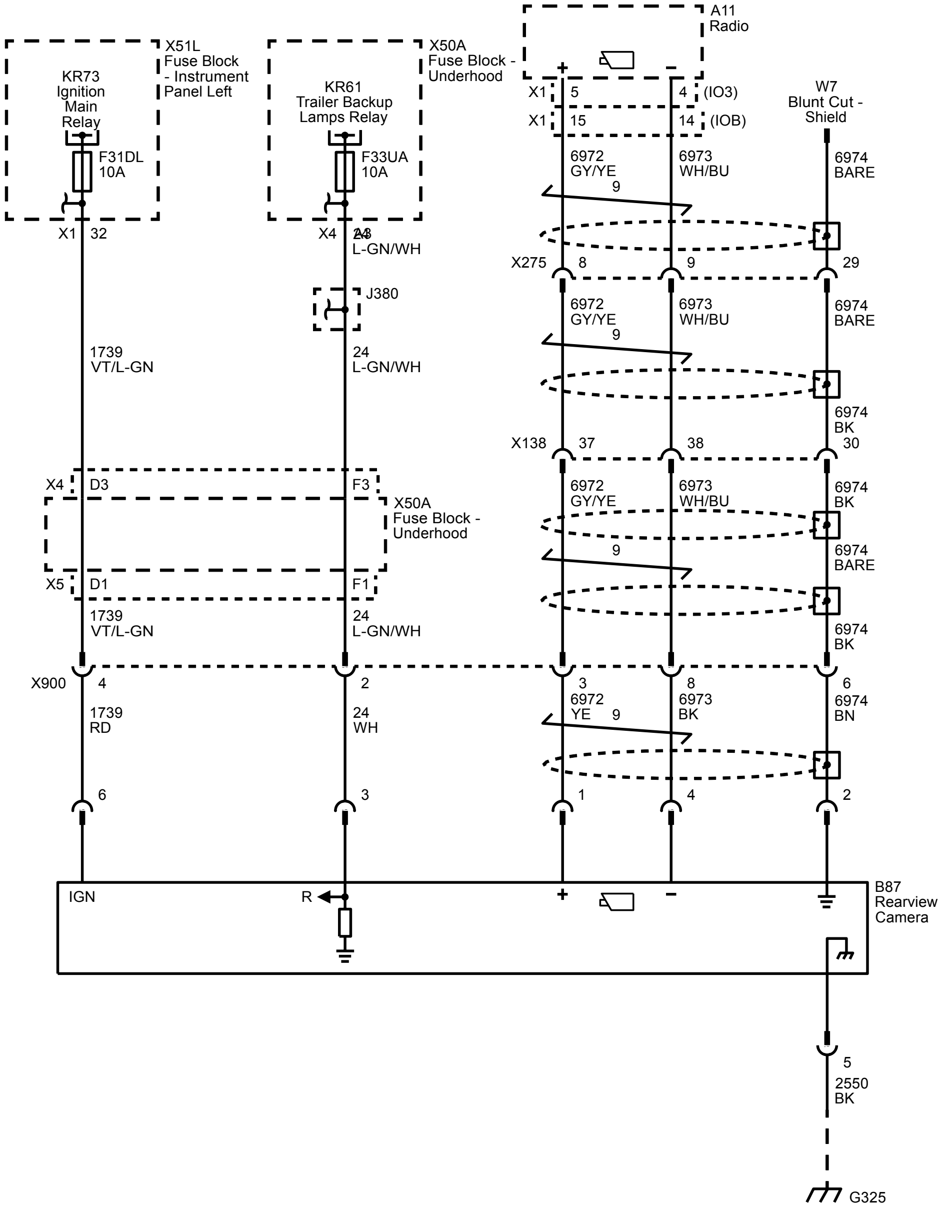

B+
X51R
Fuse Block -
Instrument
Panel Right
F27DR
15A
X1 43
3140
RD/GN
UEU/UFL
-UEU/UFL
J305
3140
RD/GN
A11
Radio
P9
Driver Information
Center Display
P16
Instrument
Cluster
A90
Logic
5060
L-GN
Interior Lights
Dimming
Schematics
6816
WH
X1 2
S48A
Multifunction
Switch -
Instrument
Panel
X1 6
9
14
5852
GN/BN
2555
GY/GN
X5 26
45
X61A
Junction
Block -
Instrument
Panel
X1 45
11
5852
GN/BN
2555
GY/GN
1850
BK
X1 1
4
3
8
B+
K182
Parking
Assist
Control
Module
X1 7
2751
BK/WH
G327
G218


K182 Parking Assist Control Module
12V
X2
4
1
3
7
5
8
2374 BN/WH
2375 YE
2376 YE/D-BU
2377 YE/WH
2378 YE/VT
2379 BK/GY
X138
9
11
12
14
13
21
X901
7
9
10
11
12
6
J490
B78G Rear Object Sensor - Left Outer
B78E Rear Object Sensor - Left Middle
B78F Rear Object Sensor - Right Middle
B78H Rear Object Sensor - Right Outer
1
2
3
J495

# Park Assist - Front Sensors (UD5)

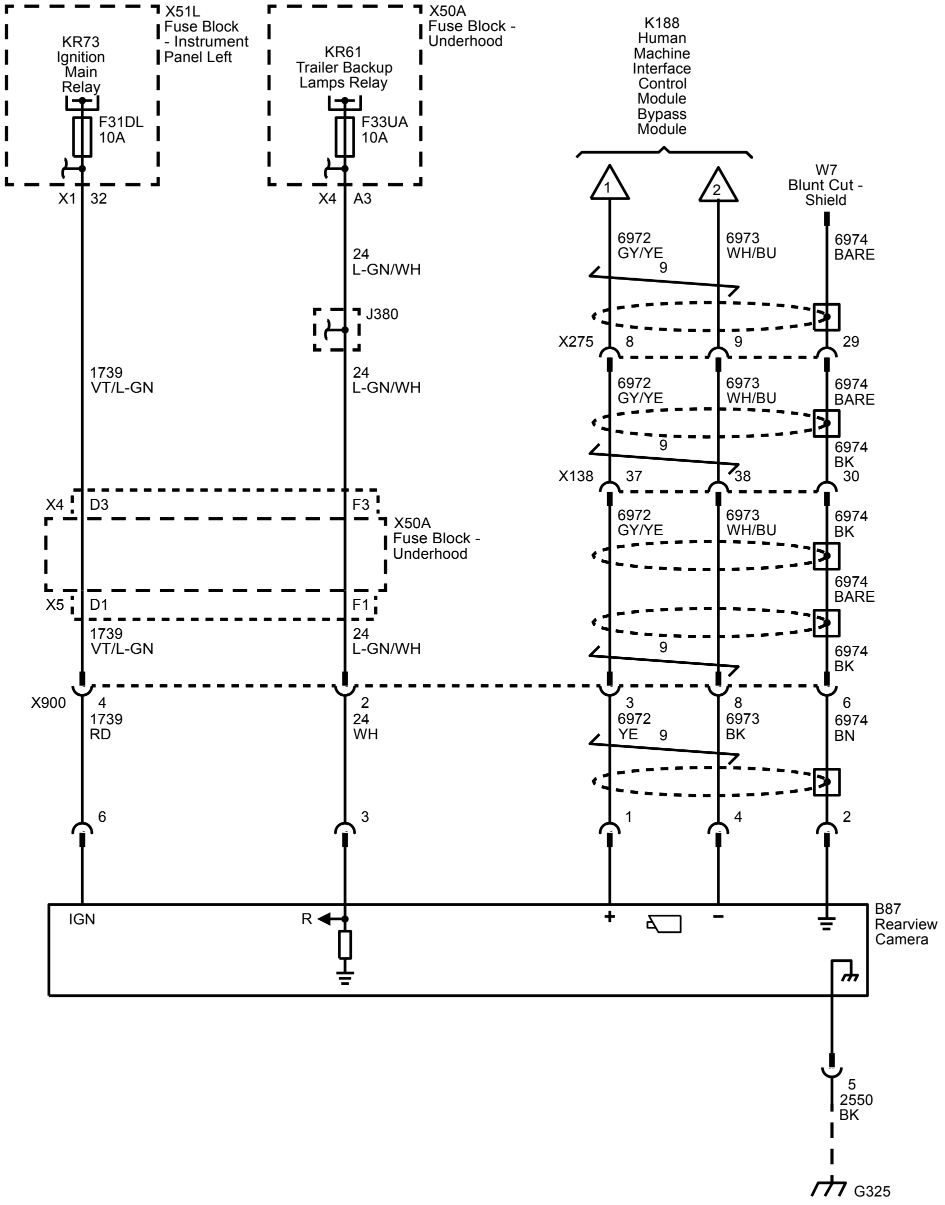

K182 Parking Assist Control Module
12V
X3
1
4
5
12
11
8
5213 YE/VT
5215 VT/WH
5216 YE/GY
5218 VT/GY
5217 WH/GY
5214 BK/D-BU
X150
15
8
4
6
5
7
5213 YE/VT
5215 VT/WH
5216 YE/GY
5218 VT/GY
5217 WH/GY
5214 BK/D-BU
X100
4
5
6
10
7
11
5213 YE/GN
5215 VT/WH
5216 YE/GY
5218 VT/GY
5217 WH/GY
5214 BK/D-BU
J105
5213 YE/GN
5213 YE/GN
5213 YE/GN
5213 YE/GN
1
2
B78A Front Object Sensor - Left Outer
1
2
B78C Front Object Sensor - Left Middle
1
2
B78D Front Object Sensor - Right Middle
1
2
B78B Front Object Sensor - Right Outer
3
3
3
3
5214 BK/D-BU
5214 BK/D-BU
5214 BK/D-BU
5214 BK/D-BU
J104

# Rearview Camera (UVC with IOB/IO3)

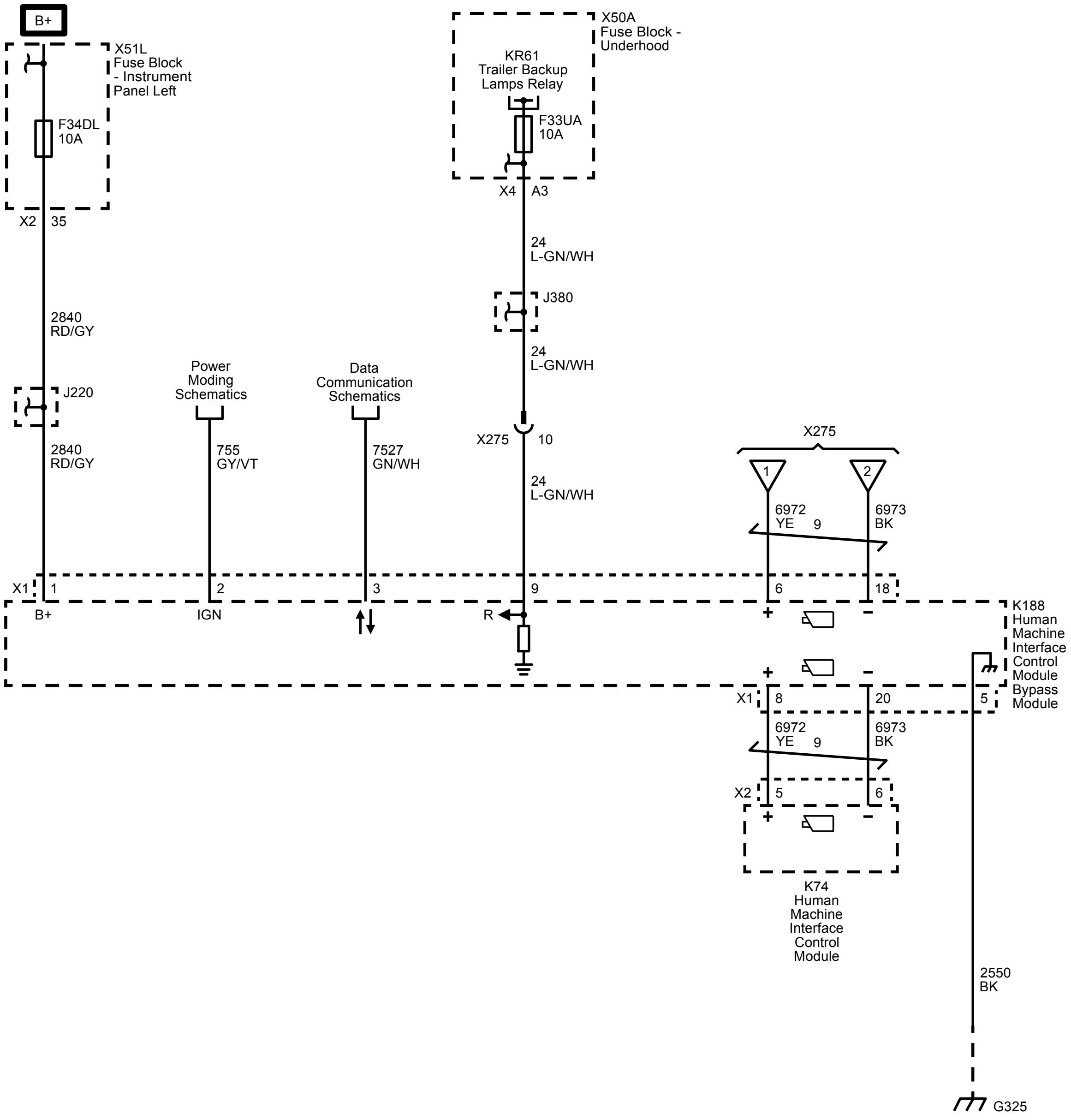


X51L
Fuse Block - Instrument Panel Left
KR73 Ignition Main Relay
F31DL 10A
X1 32
1739 VT/L-GN
X50A
Fuse Block - Underhood
KR61 Trailer Backup Lamps Relay
F33UA 10A
X4 24
24 L-GN/WH
J380
24 L-GN/WH
A11 Radio
+
−
X1 5
4 (IO3)
X1 15
14 (IOB)
W7 Blunt Cut - Shield
6972 GY/YE
6973 WH/BU
9
6974 BARE
X275 8
9
29
6972 GY/YE
6973 WH/BU
9
6974 BARE
6974 BK
X138 37
38
30
6972 GY/YE
6973 WH/BU
6974 BK
9
6974 BARE
6974 BK
X4 D3
F3
X50A
Fuse Block - Underhood
X5 D1
F1
1739 VT/L-GN
24 L-GN/WH
X900 4
2
3
8
6
1739 RD
24 WH
6972 YE
9
6973 BK
6974 BN
6
3
1
4
2
IGN
R
+
−
B87 Rearview Camera
5
2550 BK
G325

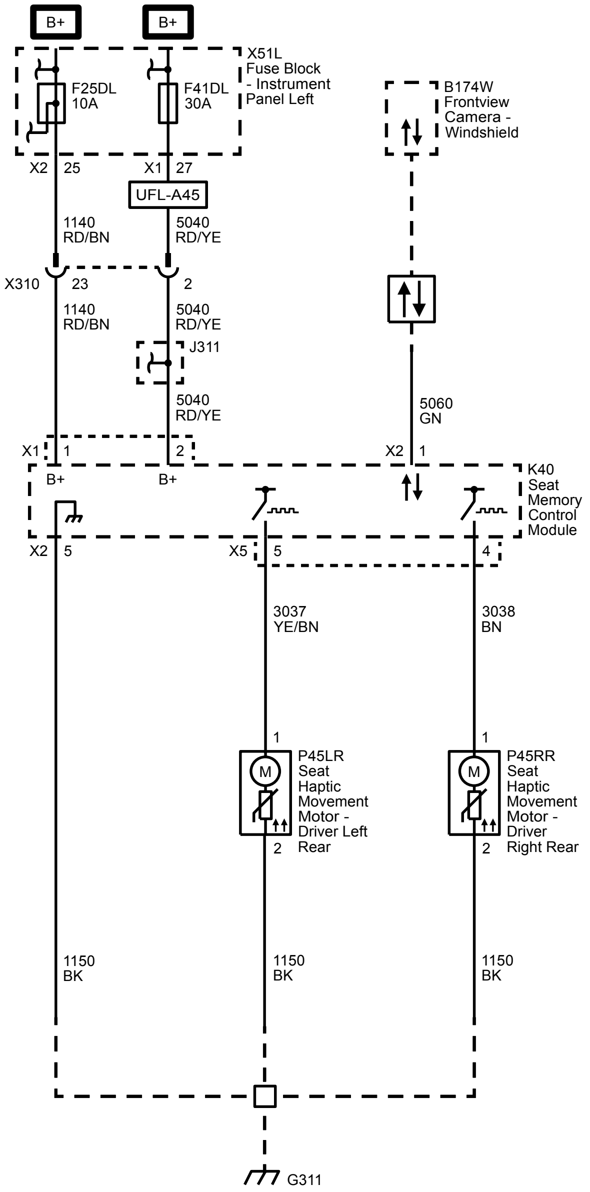
# Rearview Camera (UVC with IO5 or IO6) (1 of 2)


KR73 Ignition Main Relay
X51L Fuse Block - Instrument Panel Left
F31DL 10A
X1 32
KR61 Trailer Backup Lamps Relay
X50A Fuse Block - Underhood
F33UA 10A
X4 A3
24 L-GN/WH
J380
24 L-GN/WH
1739 VT/L-GN
K188 Human Machine Interface Control Module Bypass Module
1
2
6972 GY/YE
6973 WH/BU
9
W7 Blunt Cut - Shield
6974 BARE
X275 8 9 29
6972 GY/YE
6973 WH/BU
6974 BARE
9
6974 BK
X138 37 38 30
6972 GY/YE
6973 WH/BU
6974 BK
6974 BARE
X4 D3 F3
X50A Fuse Block - Underhood
X5 D1 F1
1739 VT/L-GN
24 L-GN/WH
9
6974 BK
X900 4 2 3 8 6
1739 RD
24 WH
6972 YE
9
6973 BK
6974 BN
6 3 1 4 2
IGN
R
+
−
B87 Rearview Camera
5
2550 BK
G325

## Rearview Camera (UVC with IO5 or IO6) (2 of 2)

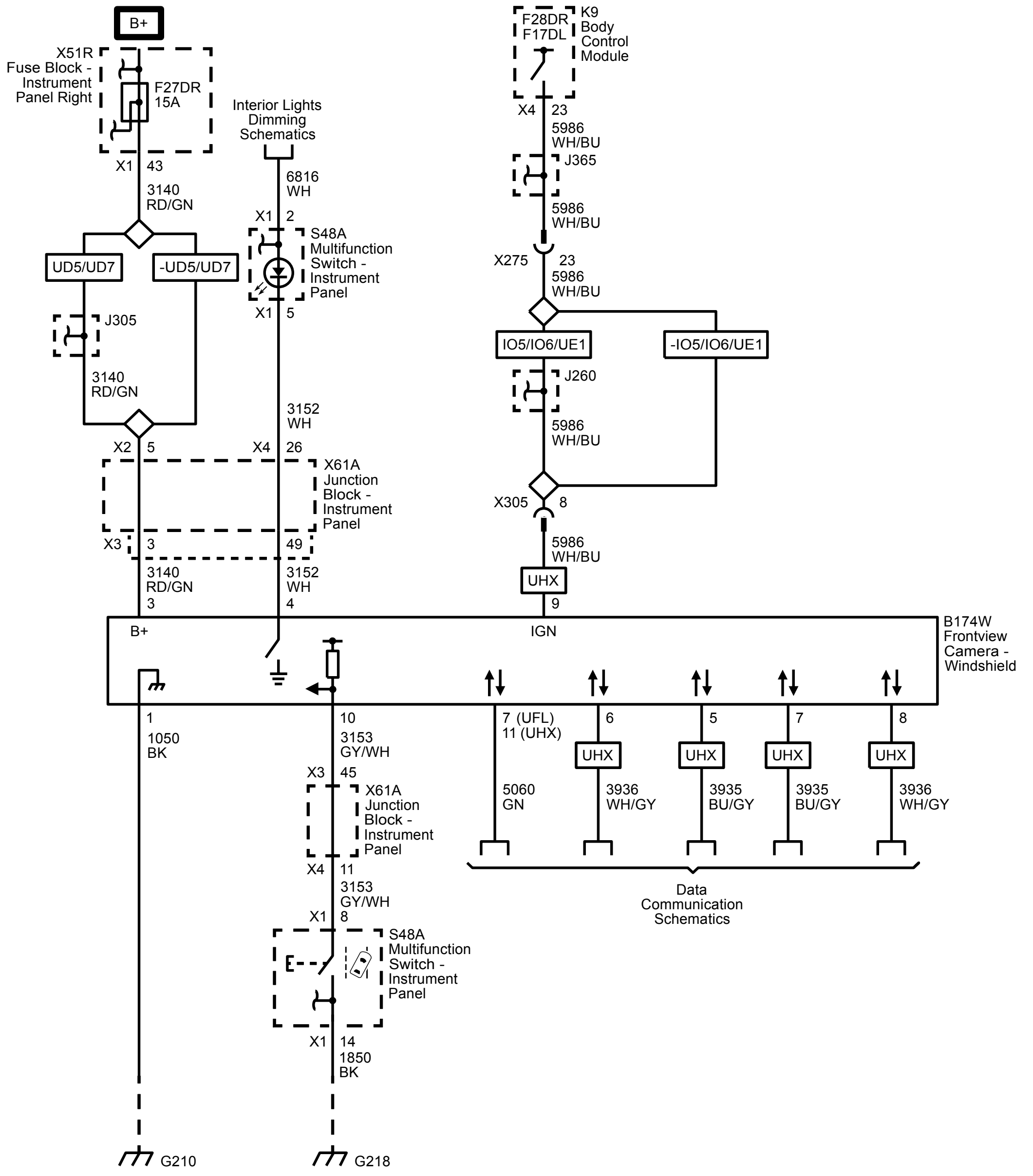

B+
X51L
Fuse Block
- Instrument
Panel Left
F34DL
10A
X2
35
2840
RD/GY
J220
2840
RD/GY
X50A
Fuse Block -
Underhood
KR61
Trailer Backup
Lamps Relay
F33UA
10A
X4
A3
24
L-GN/WH
J380
24
L-GN/WH
X275
10
24
L-GN/WH
Power
Moding
Schematics
755
GY/VT
Data
Communication
Schematics
7527
GN/WH
X275
1
2
6972
YE
9
6973
BK
X1
1
2
3
9
6
18
B+
IGN
R
+
−
K188
Human
Machine
Interface
Control
Module
Bypass
Module
X1
8
20
5
6972
YE
9
6973
BK
X2
5
6
K74
Human
Machine
Interface
Control
Module
2550
BK
G325

## Safety Alert Seat (UEU, UFL or UHX)

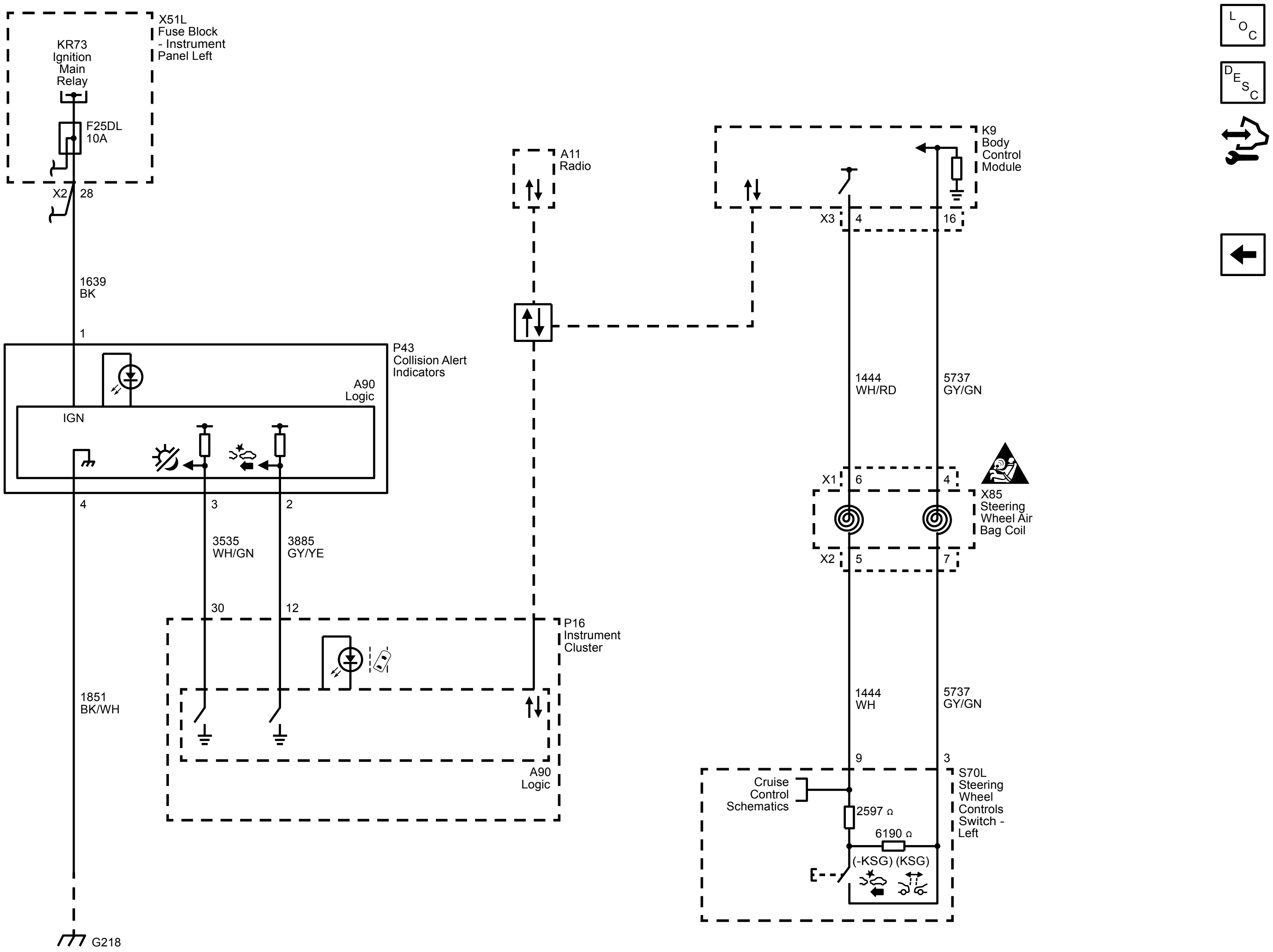

B+
B+
X51L
Fuse Block
- Instrument
Panel Left
F25DL
10A
F41DL
30A
X2
25
X1
27
UFL-A45
B174W
Frontview
Camera -
Windshield
1140
RD/BN
5040
RD/YE
X310
23
2
1140
RD/BN
5040
RD/YE
J311
5040
RD/YE
5060
GN
X1
1
2
X2
1
B+
B+
K40
Seat
Memory
Control
Module
X2
5
X5
5
4
3037
YE/BN
3038
BN
1
P45LR
Seat
Haptic
Movement
Motor -
Driver Left
Rear
2
M
1
P45RR
Seat
Haptic
Movement
Motor -
Driver
Right Rear
2
M
1150
BK
1150
BK
1150
BK
G311

LOC
DESC

# Lane Departure Warning (UFL) or Lane Active Safety Keep Assist (UHX)


B+
X51R
Fuse Block - Instrument Panel Right
F27DR
15A
X1 43
3140
RD/GN
UD5/UD7
-UD5/UD7
J305
3140
RD/GN
X2 5
Interior Lights Dimming Schematics
6816
WH
X1 2
S48A
Multifunction Switch - Instrument Panel
X1 5
3152
WH
X4 26
X61A
Junction Block - Instrument Panel
X3 3
49
3140
RD/GN
3
3152
WH
4
F28DR
F17DL
K9
Body Control Module
X4 23
5986
WH/BU
J365
5986
WH/BU
X275 23
5986
WH/BU
IO5/IO6/UE1
-IO5/IO6/UE1
J260
5986
WH/BU
X305 8
5986
WH/BU
UHX
9
B+
IGN
B174W
Frontview Camera - Windshield
1
1050
BK
10
3153
GY/WH
X3 45
X61A
Junction Block - Instrument Panel
X4 11
3153
GY/WH
X1 8
S48A
Multifunction Switch - Instrument Panel
X1 14
1850
BK
G210
G218
7 (UFL)
11 (UHX)
5060
GN
6
UHX
3936
WH/GY
5
UHX
3935
BU/GY
7
UHX
3935
BU/GY
8
UHX
3936
WH/GY
Data Communication Schematics

## Forward Collision Alert (UEU)



X51L
Fuse Block - Instrument Panel Left
KR73 Ignition Main Relay
F25DL 10A
X2 28
1639 BK
1
P43 Collision Alert Indicators
A90 Logic
IGN
4
3
2
3535 WH/GN
3885 GY/YE
1851 BK/WH
G218
A11 Radio
30
12
P16 Instrument Cluster
A90 Logic
K9 Body Control Module
X3 4
16
1444 WH/RD
5737 GY/GN
X1 6
4
X85 Steering Wheel Air Bag Coil
X2 5
7
1444 WH
5737 GY/GN
9
3
S70L Steering Wheel Controls Switch - Left
Cruise Control Schematics
2597 Ω
6190 Ω
(-KSG) (KSG)
L O C
D E S C

# Description and Operation

## Parking Assist Description and Operation (with UD7)

The parking assist system is designed to identify and notify the driver of an object in the vehicle path when reversing at speeds of less than 8 km/h (5 MPH). The distance and location of the object is determined by four object sensors located in the rear bumper. The parking assist system will notify the driver using audible beeps through the infotainment system.

The parking assist system is made up of the following components:

- Parking assist control module
- Object sensors
- Parking assist switch
- Parking assist switch indicator
- Infotainment system

### Parking Assist Control Module

The parking assist control module provides a reference voltage and a low reference to the four object alarm sensors. The parking assist control module receives individual signals from each of the four sensors and determines the location and distance of an object based on these inputs. When an object is detected, the parking assist control module will send a message via serial data to the infotainment system requesting an audible alert.

### Object Sensors

The object sensors are located in the rear bumper. The sensors are used to determine the distance between an object and the rear of the vehicle. Each sensor emits an ultrasonic frequency which is reflected off an object behind the vehicle. These reflections are received by the sensors. The time difference between the emission of the frequency and when the reflection is received is known as sensor echo time, it is used to determine the distance to the object. The sensors report this information to the parking assist control module.

### Parking Assist Switch

The parking assist system can be activated and deactivated by pressing the parking assist switch. The parking assist control module applies voltage and monitors the parking assist switch signal circuit. The parking assist switch is a normally open switch. With the switch open, voltage seen at the parking assist control module is high. When the parking assist switch is pressed, the switch is closed and the signal circuit is pulled to ground. With the switch closed, voltage seen at the parking assist control module is low. The parking assist control module will respond to this by activating or deactivating the parking assist function.

### Parking Assist Switch Indicator

When the parking assist system is enabled, the parking assist control module will illuminate the indicator on the switch. The indicator receives voltage through a high control circuit from the body control module (BCM) and is controlled through a low control circuit by the parking assist control module.

### Infotainment System

The infotainment system controls the audible alert for the park assist alert. If the an object is detected the infotainment system will command beeps as an audible alert to the driver.

## Parking Assist Operation

When an object is within the measuring range of the sensor, the ultrasonic pulse is reflected and is received by the sending or a neighboring sensor. The sensor converts this signal into a voltage signal and sends this signal to the parking assist control module. The parking assist control module evaluates the received sensor signals. As soon as an object is within the measuring range, the parking assist control module sends a message via serial data to the infotainment system to provide an alert signal.

The parking assist system can detect objects greater than 7.6 cm (3 in) wide and 25.4 cm (10 in) tall. The system cannot detect objects below the bumper or underneath the vehicle.

The parking assist system can be activated and deactivated by pressing the parking assist switch. When the transmission is in R, park assist is automatically activated, unless disable by the switch.

The parking assist control module carries out a self test and monitors the sensors for electrical and mechanical faults. Monitored is the power supply of each sensor and the sensor signals. Mud, ice and snow may cause obstruction of the function of the sensors. The parking assist control module also determines if the correct type of sensor is installed. If any of these tests fails, a DTC with corresponding symptom is set and the parking assist system is deactivated.

## Parking Assist System Driver Information Center Messages

### SERVICE PARK ASSIST

The driver information center displays SERVICE PARK ASSIST when the parking assist control module detects a malfunction in the parking assist system and the system is disabled. The driver information center also displays SERVICE PARK ASSIST when a loss of communication occurs with the parking assist control module.

### PARK ASSIST OFF

The PARK ASSIST OFF message is displayed in the driver information center when the parking assist system is disabled due to conditions that disable or inhibit the system. The parking assist control module requests the driver information center display PARK ASSIST OFF when it detects that one of the following conditions:

- The parking assist system is manually disabled using the parking assist switch.
- An object is attached to the rear of the vehicle, such as a trailer, bicycle rack, trailer hitch receiver, or tow bar. Also, an object extending beyond a lowered tailgate will disable the system.
- The object sensors are covered by snow, mud, dirt, slush, or ice.
- The rear bumper is damaged.
- Excessive paint thickness on a replacement parking assist sensor.
- The object sensors are disrupted by vibrations, like those caused by a large nearby vehicle or from heavy equipment such as a jackhammer.

## Parking Assist Description and Operation (with UD5)

The parking assist system is designed to identify and notify the driver of an object in the vehicle path when moving forward or reversing at speeds of less than 8 km/h (5 MPH). The distance and location of the object is determined by four object sensor located in the rear bumper and four object sensors located in the front bumper. The parking assist system will notify the driver using audible beeps through the infotainment system or haptic pulses through the driver's seat (if equipped).

The parking assist system is made up of the following components:

- Front and rear parking assist control module
- Front object sensors
- Rear object sensors
- Parking assist switch
- Parking assist indicator
- Infotainment system
- Safety alert seat, if equipped.

### Front and rear parking assist control module

The front and rear parking assist control module provides a reference voltage and a low reference to the eight object alarm sensors. The front and rear parking assist control module receives individual signals from each of the eight sensors and determines the location and distance of an object based on these inputs. When an object is detected, the front and rear parking assist control module will send a serial data message to the infotainment system requesting an audible alert.

### Object Sensors

The object sensors are located in the front and rear bumpers of the vehicle. The sensors are used to determine the distance between an object and the bumper. Each sensor emits an ultrasonic frequency which is reflected off any object located in front of or behind the vehicle. These reflections are received by the sensors. The time difference between the emission of the frequency and when the reflection is received is known as sensor echo time, it is used to determine the distance to the object. The sensors report this information to the front and rear parking assist control module.

### Parking Assist Switch

The parking assist system can be activated and deactivated by pressing the parking assist switch. The front and rear parking assist control module applies voltage and monitors the parking assist switch signal circuit. The parking assist switch is a normally open switch. With the switch open, voltage seen at the front and rear parking assist control module is high. When the parking assist switch is pressed, the switch is closed and the signal circuit is pulled to ground. With the switch closed, voltage seen at the front and rear parking assist control module is low. The front and rear parking assist control module will respond to this by activating or deactivating the parking assist function.

### Parking Assist Indicator

When the parking assist system is enabled, the front and rear parking assist control module will illuminate the indicator on the switch. The indicator receives voltage through a high control circuit from the body control module (BCM) and is controlled through a low control circuit by the front and rear parking assist control module.

### Infotainment system

The infotainment system controls the audible alert for the park assist alert. If the an object is detected the infotainment system will command beeps as an audible alert to the driver.

### Safety alert seat (if equipped)

The memory seat module controls the haptic alert provided by the seats. If an object is detected, the memory seat module will command pulses to the driver's seat.

### Parking Assist Operation

When an object is within the measuring range of the sensor, the ultrasonic pulse is reflected and is received by the sending or a neighboring sensor. The sensor converts this signal into a voltage signal and sends this signal to the front and rear parking assist control module. The front and rear parking assist control module evaluates the received sensor signals. As soon as an object is within the measuring range, the front and rear parking assist control module sends a message via serial data to the infotainment system to provide an alert signal.

The parking assist system can detect objects greater than 7.6 cm (3 in) wide and 25.4 cm (10 in) tall. The system cannot detect objects below the bumper or underneath the vehicle.

The parking assist system can be activated and deactivated by pressing the parking assist switch. When the transmission is in R, park assist is automatically activated, unless disable by the switch.

The front and rear parking assist control module carries out a self test and monitors the sensors for electrical and mechanical faults. Monitored is the power supply of each sensor and the sensor signals. Mud, ice and snow may cause obstruction of the function of the sensors. The front and rear parking assist control module also determines if the correct type of sensor is installed. If any of these tests fails, a DTC with corresponding symptom is set and the parking assist system is deactivated.

When an object is 120 cm (47 in) to 31 cm (12 in) in front of the vehicle, the proximity of the object from the vehicle communicated via the instrument cluster.

When an object is very close (<0.6 m (2 ft) in the vehicle rear, or <0.3 m (1 ft) in the vehicle front), a continuous beep will sound from the front or rear, or both sides of the Safety Alert Seat (if equipped) will pulse.

### Parking Assist System Driver Information Center Messages

### SERVICE PARK ASSIST

The driver information center displays SERVICE PARK ASSIST when the front and rear parking assist control module detects a malfunction in the parking assist system and the system is disabled. The driver information center also displays SERVICE PARK ASSIST when a loss of communication occurs with the front and rear parking assist control module.

### PARK ASSIST OFF

The PARK ASSIST OFF message is displayed in the driver information center when the parking assist system is disabled due to conditions that disable or inhibit the system. The front and rear parking assist control module requests the driver information center display PARK ASSIST OFF when it detects that one of the following conditions:

- The parking assist system is manually disabled using the parking assist switch.
- An object is attached to the rear of the vehicle, such as a trailer, bicycle rack, trailer hitch receiver, or tow bar. Also, an object extending beyond a lowered tailgate will disable the system.

- The parking assist sensors are covered by snow, mud, dirt, slush, or ice.
- The vehicle bumper is damaged.
- Excessive paint thickness on a replacement parking assist sensor.
- The parking assist sensors are disrupted by vibrations, like those caused by a large nearby vehicle or from heavy equipment such as a jackhammer.

## Lane Departure Warning Description and Operation

The lane departure warning system is a convenience feature that utilizes the frontview camera module to determine if the vehicle has unintentionally crossed a lane marking and issue a warning. The frontview camera module is located behind the windshield, looking out at the road ahead and detecting any lane markings. When the vehicle unintentionally leaves a detected lane, visual and audible or haptic (if equipped) alerts are given to the driver. The visual alert cannot be changed, but the driver can select between audible or haptic alerts (if equipped)vin the vehicle personalization menus. Refer to the vehicle owner’s manual for vehicle personalization options.

The lane departure warning system utilizes the following components:

- Frontview camera module
- Lane departure warning switch
- Instrument cluster
- Infotainment system
- Safety alert seat, if equipped

### Frontview Camera Module

The frontview camera module detects visual queues such as lane markings. When it is determined that the vehicle has unintentionally moved outside of the lane, visual and audible or haptic (if equipped) warning is given to the driver. The frontview camera module receives an input from the lane departure warning switch and controls the lane departure warning switch indicator output. The frontview camera module also communicates via serial data with the instrument cluster, infotainment system, and memory seat module to request visual, audible, and/or haptic alerts.

### Lane Departure Warning Switch

The lane departure warning switch provides an input to the frontview camera module to turn the lane departure warning system on and off. The frontview camera module applies voltage and monitors the parking assist switch signal circuit. The lane departure warning switch is a normally open switch. With the switch open, voltage seen at the frontview camera module is high. When the lane departure warning switch is pressed, the switch is closed and the signal circuit is pulled to ground. With the switch closed, voltage seen at the frontview camera module is low. The frontview camera module will respond to this by activating or deactivating the lane departure warning system.

The lane departure warning switch also utilizes the lane departure warning indicator, which is part of the lane departure warning switch and is controlled by the frontview camera module to indicate the operational status of the lane departure warning system. When the lane departure warning is enabled, the frontview camera module will illuminate the indicator on the switch. The indicator receives voltage through a high control circuit from the body control module (BCM) and is controlled through a low control circuit by the frontview camera module.

### Instrument Cluster

The instrument cluster contains green and amber lane departure warning indicators. These indicators inform the driver of the current status of the lane departure warning system and are controlled via serial data by the frontview camera module. When the vehicle speed is above 56 km/h (35 MPH) and the system has detected the required lane markings and is ready to assist, the green indicator will be illuminated. If the vehicle has unintentionally left the lane, the amber indicator will flash.

### Infotainment System

The infotainment system controls the audible alert for the lane departure warning. If the vehicle has unintentionally left the lane, the frontview camera module will request via serial data an audible alert to the driver through the infotainment system

### Safety Alert Seat

The memory seat module controls the haptic alert provided by the seats. If the vehicle has unintentionally left the lane, the memory seat module will command pulses to the left or right side of the seat, depending on the lane departure direction.

## Lane Departure Warning Operation

### System Operational Modes

- Off State: The system has been turned off by the driver using the lane departure warning switch. The lane departure warning indicator located on the lane departure warning switch will not be illuminated.
- Not Ready To Assist: The system is enabled and the lane departure warning indicator located on the lane departure warning switch is illuminated, but the system is not ready to assist because one of the following conditions is true:
  - Vehicle speed is less than 56 km/h (35 MPH). The system is designed to function at speeds greater than 56 km/h (35 MPH).
  - The system cannot detect lane markings. This may be because there are no lane markings or the lane markings cannot be determined due to snow, rain, or other driving conditions.
  - The windshield area in front of the camera or the camera lens is blocked by fog, dirt, damage to the windshield, or other elements that may prevent the camera from detecting lane markings.
- Ready To Assist: The system is enabled and ready to warn of the unintentional lane crossing. The system is ready to assist when the green lane departure warning indicator is illuminated on the instrument cluster.

### Lane Crossing Alerts

- A lane crossing alert consists of the following:
  - The amber lane departure warning indicator located on instrument cluster will flash.
  - Three chimes are activated through the infotainment system or three pulses to the left or right side of the seat, if equipped with safety alert seat
- When any of the following conditions occurs, the system will not give alerts:
  - The appropriate turn signal is activated. An activated turn signal is interpreted as an intentional lane crossing.
  - The operator makes an intentional steering maneuver.
  - The operator makes an intentional accelerating maneuver.
  - The operator makes an intentional braking maneuver.

## Forward Collision Alert Description and Operation (without UGN)

The forward collision alert system is a convenience feature of the frontview camera module that issues a warning to the driver when a potential collision risk exists. The frontview camera module is located behind the windshield, looking out at the road ahead and detecting vehicles directly ahead. When the system detects a vehicle in the path ahead, the green vehicle ahead indicator is illuminated on the instrument cluster. When approaching another vehicle too rapidly, the collision alert symbol will flash in the head-up display (if equipped) or a series of red collision alert indicators will flash. An audible alert sound will simultaneously sound or the safety alert seat will provide haptic feedback. The visual alert cannot be changed, but the driver can select between audible or haptic alerts in the vehicle personalization menus. The forward collision alert system can also be turned on or off through the vehicle personalization menus. See the vehicle owner manual for more detailed information on vehicle personalization.

Forward collision alert does not provide a warning to help avoid a crash, unless it detects a vehicle. Forward collision alert may not detect a vehicle ahead if the frontview camera module is blocked by dirt, snow, or ice, or if the windshield is damaged. It may also not detect a vehicle on winding or hilly roads, or in conditions that can limit visibility such as fog, rain, or snow, or if the headlamps or windshield are not cleaned or in proper condition. Keep the windshield, headlamps, and frontview camera module clean and in good repair.

Forward collision alert may provide unnecessary alerts for turning vehicles, vehicles in other lanes, objects that are not vehicles, or shadows. These alerts are normal operation and the vehicle does not need service.

### Front Automatic Braking (if equipped)

When the system detects a vehicle ahead in your path that is traveling in the same direction that you may be about to crash into, it can provide a boost to braking or automatically brake the vehicle. This can help avoid or lessen the severity of crashes when driving in a forward gear. Depending on the situation, the vehicle may automatically brake moderately or hard. This front automatic braking can only occur if a vehicle is detected.

The system works when driving in a forward gear between 5 mph (8 km/h) and 50 mph (80 km/h), or on vehicles with Adaptive Cruise Control above 2 mph (4 km/h). It can detect vehicles up to approximately 197 ft (60 m).

### Pedestrian Collision Mitigation Braking (if equipped) is a feature subset of Front Impact Mitigation that aims to reduce the likelihood of collisions or reduce the impact speed with pedestrians in the forward direction by the following:

- Determining the forward path of the vehicle
- Monitoring this path with respect to pedestrians in or near the forward path
- When appropriate, providing pedestrian detection pedestrian and alerts to the driver, and if certain conditions are met, providing autonomous braking to help avoid or reducing the impact speed of a collision with the pedestrian

This system is not intended to replace the driver responsibility paying careful attention to the forward scene for pedestrian, vehicle, and other potential hazards. Its function is limited to supplemental use only to assist rather than replace the driver in responding to pedestrians in the forward scene.

The Pedestrian Collision Mitigation Braking system can detect and alert to up to 10 pedestrians in a forward gear at speeds between 5 mph (8 km/h) and 50 mph (80 km/h). During daytime driving, the system detects pedestrians up to a distance of approximately 40 m (131 ft). Pedestrians must be at least 31.5 inches (80 cm) tall to be detected.

No added components are required for Front Automatic Braking, or Pedestrian Collision Mitigation Braking. Refer to Owner Manual – Driver Assistance Systems for more details.

### The forward collision alert system is made up of the following components:

- Frontview camera module
- Forward collision alert switch
- Instrument cluster
- Collision alert indicators (without UV6)
- Head-up display (with UV6)
- Infotainment system
- Safety alert seat, if equipped

### Frontview Camera Module

The frontview camera module detects vehicles in front of the vehicle. The frontview camera module communicates with the instrument cluster via serial data to illuminate the appropriate amber or green vehicle ahead indicator, collision alert symbol will flash in the head-up display, or collision alert indicators. The frontview camera module also communicates via serial data with the infotainment system and memory seat module to request audible or haptic alerts.

### Forward Collision Alert Switch

The forward collision alert switch provides an input to the frontview camera module to select the alert timing sensitivity when approaching another vehicle too rapidly. The forward collision alert switch is part of the steering wheel controls switch – left and provides inputs to the body control module (BCM), which then communicates with the frontview camera module via serial data.

The BCM applies a reference voltage and monitors a low signal voltage from the normally open switch. When the switch is pressed, the signal circuit is pulled low through a specific series of resistors, indicating that the system has been requested to change the alert timing sensitivity. The first button press will show the current alert timing setting on the driver information center. With every subsequent button press, the alert timing sensitivity is changed.

### Instrument Cluster

The instrument cluster communicates via serial data with the frontview camera module and will illuminate the amber or green vehicle ahead indicator as requested by the frontview camera module. The instrument cluster also controls the head-up display or the collision alert indicators.

### Collision Alert Indicators (without UV6)

The collision alert indicators are a series of red LEDs that will flash when approaching another vehicle too rapidly. The collision alert indicators are located in the upper instrument panel area and reflect off the windshield when illuminated.

The collision alert indicators receive power and ground and are discretely controlled by the instrument cluster through a pair of low control circuits. When requested by the frontview camera module, the instrument panel will pulse the low control circuits, flashing the LEDs as a visual alert that another vehicle is being approached too rapidly.

### Head-up Display (with UV6)

The instrument cluster controls the head-up display via serial data. The instrument cluster will command the head-up display to flash the collision alert indicator as a visual alert when approaching another vehicle too rapidly as requested by the frontview camera module.

### Infotainment System

The infotainment system controls the audible alerts for the forward collision alert system. If the host vehicle is approaching another vehicle too rapidly, the frontview camera module will command the infotainment system issue an audible alert to the driver.

### Safety Alert Seat (if equipped)

The memory seat module controls the haptic alert provided by the seats. If the vehicle is approaching another vehicle too quickly, the frontview camera module will command the memory seat module to pulse both sides of the seat.

## Rear Vision Camera Description and Operation

The rear vision camera system consists of the rearview camera and the infotainment system.

When the transmission is placed into R, 12 V is applied to the reverse lamp control circuit by the body control module (BCM). The rearview camera monitors this circuit and when 12 V is seen, indicating that the transmission is in R, the rearview camera will activate. The rearview camera receives ignition voltage and a constant ground to power the camera. Video signal + and video signal – circuits carry the video image from the rearview camera to the infotainment system. Additionally, the video signal circuits are shielded to prevent any interference which may lead to a loss of video signal resolution and cause a degraded video image. The shield is grounded by the rearview camera.

The following conditions may cause a degraded rear vision camera image:

- Ice, snow, or mud has built up on the rear vision camera
- Dark conditions
- Extreme light conditions, such as glare from the sun or the headlights of another vehicle
- Damage to the rear of the vehicle
- Extreme high temperatures or extreme temperature changes

# Safety and Security

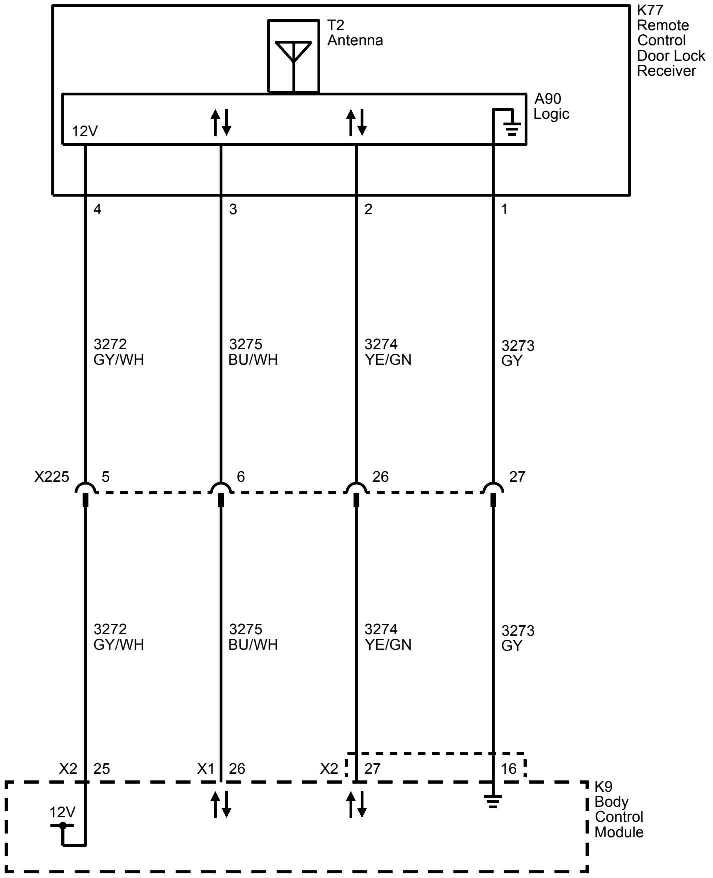
## Remote Functions

### Schematic and Routing Diagrams

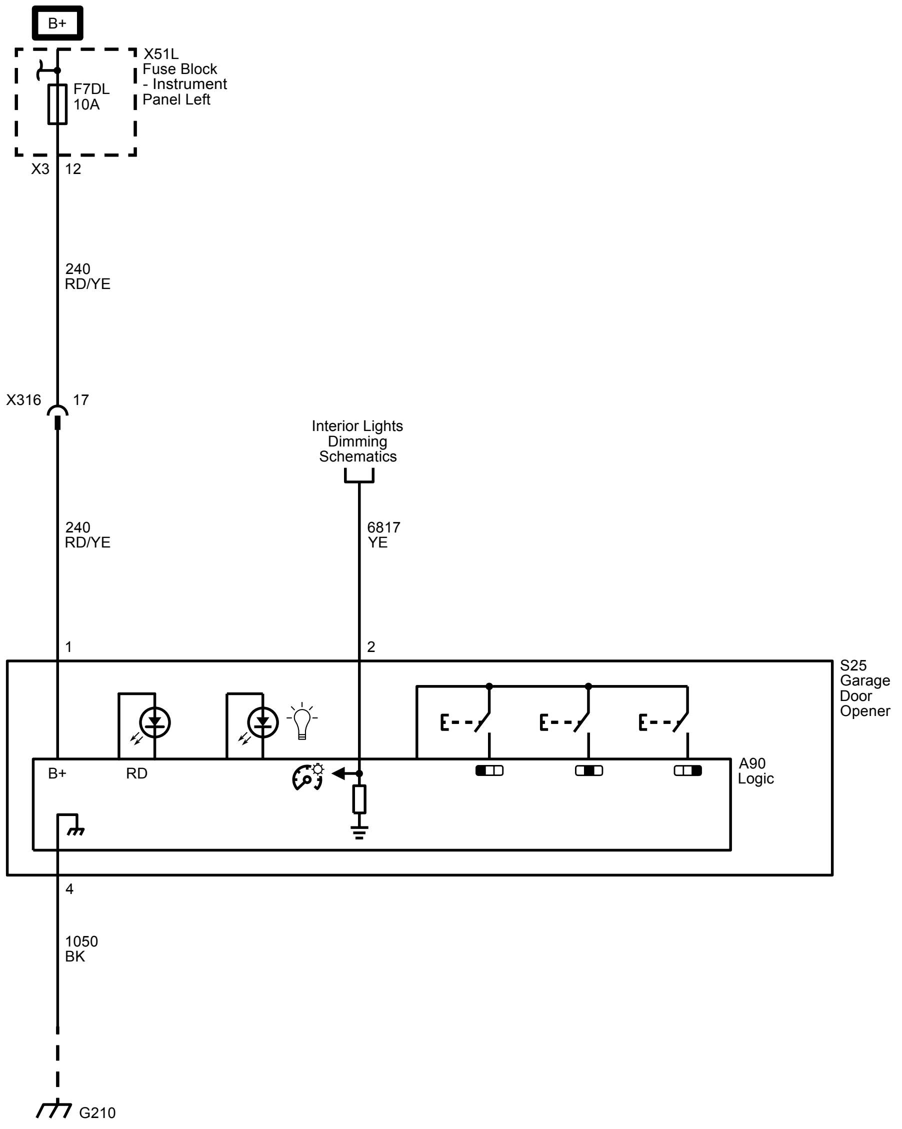
**Remote Function Schematics**

**Keyless Entry**

LOC
DESC


K77
Remote
Control
Door Lock
Receiver
T2
Antenna
A90
Logic
12V
4
3
2
1
3272
GY/WH
3275
BU/WH
3274
YE/GN
3273
GY
X225
5
6
26
27
3272
GY/WH
3275
BU/WH
3274
YE/GN
3273
GY
X2
25
X1
26
X2
27
16
12V
K9
Body
Control
Module

## Garage Door Opener (UG1)


B+
X51L
Fuse Block
- Instrument
Panel Left
F7DL
10A
X3
12
240
RD/YE
X316
17
Interior Lights
Dimming
Schematics
240
RD/YE
6817
YE
1
2
S25
Garage
Door
Opener
B+
RD
A90
Logic
4
1050
BK
G210

# Repair Instructions

## Remote Control Door Lock Transmitter Learn

### Erase/Program All Key Fobs

**Note:**

- Verify all mechanical keys operate correctly before beginning any programming procedures.
- All transmitters must be programmed in a single programming sequence. Once the Erase/Program All Key Fobs selection is made, all learned transmitters will be erased. If all the existing transmitters associated with the vehicle are not learned at this time, they will become inoperative and require additional programming.
- Do not operate or program the transmitters in the vicinity of other vehicles that are in the transmitter program mode. This will prevent the programming of the transmitters to the incorrect vehicle.

This procedure will first erase all known keyless entry transmitters. After all transmitters are erased, the procedure will begin to program keyless entry transmitters in sequential order, beginning with transmitter 1.

1. With a scan tool, access the Body Control Module Configuration/Reset Functions menu. Select Add/Replace Key Fobs.
2. Select Erase/Program Fobs. This will erase all learned transmitters and prepare the BCM to learn new transmitters. Follow the on-screen instructions.
3. When all the desired transmitters have been programmed, cycle the ignition from ON to OFF, and exit the vehicle.
4. Verify each transmitter and key is operating properly. Operate each of the keyless entry functions using the buttons on the transmitter. On vehicles with a keyed ignition switch, verify the mechanical key by starting the vehicle using the ignition switch. When verifying operation, make sure that no other transmitters are near the vehicle.

### Next Available Slot

**Note:**

- Verify all mechanical keys operate correctly before beginning any programming procedures.
- Do not operate or program the transmitters in the vicinity of other vehicles that are in the transmitter program mode. This will prevent the programming of the transmitters to the incorrect vehicle.

This procedure will program keyless entry transmitters in sequential order. If two transmitters are currently learned to the vehicle as transmitters 1 and 2, using this procedure will learn the next transmitter are transmitter 3, and so on.

1. With a scan tool, access the Body Control Module Configuration/Reset Functions menu. Select Add/Replace Key Fobs.
2. Select Next Available Slot. Follow the on-screen instructions.
3. When all the desired transmitters have been programmed, cycle the ignition from ON to OFF, and exit the vehicle.
4. Verify each transmitter and key is operating properly. Operate each of the keyless entry functions using the buttons on the transmitter. On vehicles with a keyed ignition switch, verify the mechanical key by starting the vehicle using the ignition switch. When verifying operation, make sure that no other transmitters are near the vehicle.

### Slot Programming

**Note:**

- Verify all mechanical keys operate correctly before beginning any programming procedures.
- If a slot already has a transmitter programmed to it, programming will not occur. A transmitter will only program to an open slot with no transmitter already programmed to it.
- Do not operate or program the transmitters in the vicinity of other vehicles that are in the keyless entry program mode. This prevents the programming of the transmitters to the incorrect vehicle.

Transmitter slot programming allows a single transmitter to be programmed into a specific slot without affecting any of the other programmed transmitters.

1. With a scan tool, access the Body Control Module Configuration/Reset Functions menu. Select Add/Replace Key Fobs.
2. Select the desired slot in the on-screen menu. Follow the on-screen instructions.
3. When all the desired transmitters have been programmed, cycle the ignition from ON to OFF, and exit the vehicle.
4. Verify each transmitter and key is operating properly. Operate each of the keyless entry functions using the buttons on the transmitter. On vehicles with a keyed ignition switch, verify the mechanical key by starting the vehicle using the ignition switch. When verifying operation, make sure that no other transmitters are near the vehicle.

# Description and Operation

## Garage Door Opener Description and Operation

The garage door opener is fixed and rolling code capable. Rolling code is a system that allows the code that the customers receiver receives from the garage door opener to change every time the garage door opener is used within operating range of the receiver. Rolling code programming requires the customer to push a learn/program button on the garage door opener receiver at their home. This button is usually located on the receiver unit under a cover (light cover) on one end of the unit. The customer must follow the garage door opener manufacturers instructions to program/learn the receiver to accept the Universal Home Remote System as an authorized opener for their unit . When the receiver and the garage door opener are initially programmed together, a code is established and a new code is created for every new transmission. The software in the receiver recognizes the garage door opener and accepts the new code.

The garage door opener is compatible with most, but not all types and brands of transmitters.

The garage door opener is a transmitter operating between 288–434 MHz. The power and range of the transmitter is limited to comply with laws governing the generation of radio frequency interference. The transmitter is programmed by the user to accept the signal generated by the user's transmitters.

The garage door opener has 3 buttons that may be programmed for individual transmitter/receiver combinations to control up to 3 garage door openers, security gates, lighting systems, etc. Each button represents a transmitter code section of the transmitter, which operates separately from any other button, and may be considered a separate transmitter. Operation consists of simply pressing a button to activate the corresponding transmitter.

**Note:** Do not use the garage door opener (GDO) with any garage door opener that does not have the stop and reverse safety feature. This includes any garage door opener model manufactured before April 1, 1982.

## Keyless Entry System Description and Operation

The keyless entry system is a vehicle entry device. The keyless entry system is used in conjunction with the door locks to unlock the vehicle. Keyless entry will lock/unlock the vehicle doors or open the rear compartment lid when a corresponding button on the keyless entry transmitter is pressed. This is accomplished by the transmitter sending a radio frequency to the Remote Control Door Lock Receiver antenna that has a direct link to the Body Control Module (BCM). The BCM interprets the signal and activates the requested function or request the appropriate control module to activate the function via a serial data message. A low transmitter battery or radio frequency interference from aftermarket devices, such as 2-way radios, power inverters, computers, etc., may cause a system malfunction. High radio frequency traffic areas, such as gas stations that use pay-at-the-pump radio frequency transponders, may also cause interference that could lead to a malfunction. Keyless entry allows you to operate the following features:

- Door lock/unlock
- Vehicle locator/Panic alarm
- Remote vehicle starting, if equipped

The keyless entry system has the following components:

- Keyless entry transmitters
- Body Control Module
- Remote Control Door Lock Receiver

### Keyless Entry Transmitters

**Note:** When the vehicle key is in the ignition, keyless entry functions from all keyless entry transmitter are disabled.

The keyless entry transmitters are used to perform various entry functions while away from the immediate are of the vehicle. Keyless entry functions may work at up to 20 m (65 ft) away from the vehicle. Ambient conditions may affect the performance of the keyless entry transmitter and reduce the range at which keyless entry functions operate. Up to eight transmitters may be programmed to a single vehicle.

### OnStar® Remote Link (if equipped)

A vehicle operator may have the ability to perform some of the keyless entry functions using applications on personal devices such as a smart phone. Unwanted or inadvertent door lock/unlock activation may be requested by the OnStar® Remote Link app. It is possible that a customer may be unaware of account usage, result in an unwanted or phantom door lock/unlock. If normal system diagnosis does results in an inability to verify the customer's concern, contact Technical Assistance Center (TAC).

### Body Control Module (BCM)

The BCM is a multifunction module that operates the keyless entry system. When an radio frequency message is received from a keyless entry transmitter, the BCM interprets this signal and performs the specific function, i.e. door lock, door unlock, or vehicle locate.

### Remote Control Door Lock Receiver

The Remote Control Door Lock Receiver acts as an antenna for the keyless entry system and communicates with the BCM through a dedicated serial data link. When a button is pressed on a keyless entry transmitter, the Remote Control Door Lock Receiver receives this signal and sends the request to the BCM. The BCM interprets the signal and performs the specific function, i.e. door lock, door unlock, or vehicle locate.

### Unlock Doors

Momentarily press the transmitter UNLOCK button in order to perform the following functions:

- Unlock only the driver door or all doors and liftgate (if equipped); this is customized through the DIC.
- Illuminate the interior lamps for a determined length of time or until the ignition is turned ON.
- Flash the exterior lights; this is customized through the DIC.
- Disarm the content theft deterrent system, if equipped.
- Deactivate the content theft deterrent system when in the alarm mode.

### Lock All Doors

Press the transmitter LOCK button to perform the following functions:

- Lock all vehicle doors.
- Immediately turn OFF the interior lamps.
- Flash the exterior lights and/or sound the horn; this is customized through the DIC.
- Arm the content theft deterrent system.

### Vehicle Locator/Panic Alarm

A single press of the panic button performs the following functions. Some functions may be dependent on personalization settings:

- Pulse the horn three times.
- Flash the exterior lamps three times.

A press and hold of the panic button performs the following functions:

- Illuminate the interior lamps.
- Pulse the horn and flash the exterior lamps for 30 seconds or until the following conditions occur:

  - The panic button is pressed.
  - The ignition switch is turned to the RUN position with a valid key.

## Remote Vehicle Start, if equipped

The remote vehicle start function allows engine starting while not in the vehicle. It also allows the vehicle HVAC system and other vehicle systems to enable, providing a comfortable vehicle upon entry. The remote vehicle start sequence begins by pressing and releasing the lock button and then pressing and holding the remote vehicle start buttons on the keyless entry transmitter. The turn signal lamps will illuminate to indicate the vehicle has received the remote start request. Each time an remote vehicle start is performed, the vehicle doors are locked, however they may then be unlocked/locked with the transmitter or vehicle key at any time. Once activated, the engine is allowed to run for 10 minutes. The remote vehicle start time may be extended by an additional 10 minutes by again pressing and releasing the lock button and then pressing and holding the remote vehicle start buttons on the transmitter. This feature is called a remote vehicle start continue and allows a maximum of 20 minutes of engine running. If the remote vehicle start continue is performed at seven minutes into the initial 10 minute time-out, a total of 17 minutes of engine running would occur. The remote vehicle start event may be suspended at any time by pressing only the remote vehicle start button on the transmitter or by entering the vehicle and pressing the hazard lamp switch.

In between ignition cycles, only two remote vehicle start events may occur or be attempted. Once two events or attempts have been made, future remote vehicle start events will be suspended until the vehicle is started using the ignition.

## Enable/Disable Remote Vehicle Start

Using the driver information center, remote vehicle start may be enabled or disabled as a part of vehicle personalization. Refer to the vehicle owners manual for more information.

## Hood Ajar Switch

The hood switch provides status of the hood to the BCM for remote vehicle start purposes. The switch is integrated into the hood latch assembly.

## Remote Vehicle Start Circuit Description

The BCM receives a signal from the keyless entry transmitter indicating a remote vehicle start request. A message is then sent to the BCM which determines if a crank request message will be sent to the ECM to allow engine starting. To determine if conditions are correct for an remote vehicle start event, the BCM will ensure the following conditions are met:

- A valid hood ajar switch closed signal is present.
- The doors are locked.
- The hazard switch is OFF.
- The vehicle power mode is correct.
- No content theft deterrent alarm triggers are present.

When the BCM determines all conditions meet those required for an remote vehicle start event, a message is sent via serial data to the ECM. The ECM relies on the remote vehicle start message from BCM to enable remote vehicle start when the crank request signal is received. If the ECM does not receive a valid remote vehicle start message, it will not attempt to start the engine. While the ECM is in remote vehicle start mode it will suspend engine operation if any of the following additional conditions occur:

- Vehicle speed is greater than 0.
- Transmission is not in PARK.
- Excessive engine coolant temperature
- Low oil pressure
- The malfunction indicator lamp (MIL) is commanded ON.
- Engine crank time is greater than 30 seconds.
- Excessive engine speed
- Accelerator pedal position too high
- Remote start timer equals 0.
- Immobilizer system indicates tamper

## Keyless Entry Personalization

Vehicle lock/unlock functions and remote vehicle start remote vehicle start settings may be personalized. For functional descriptions and personalization instructions, refer to the vehicle owners manual.

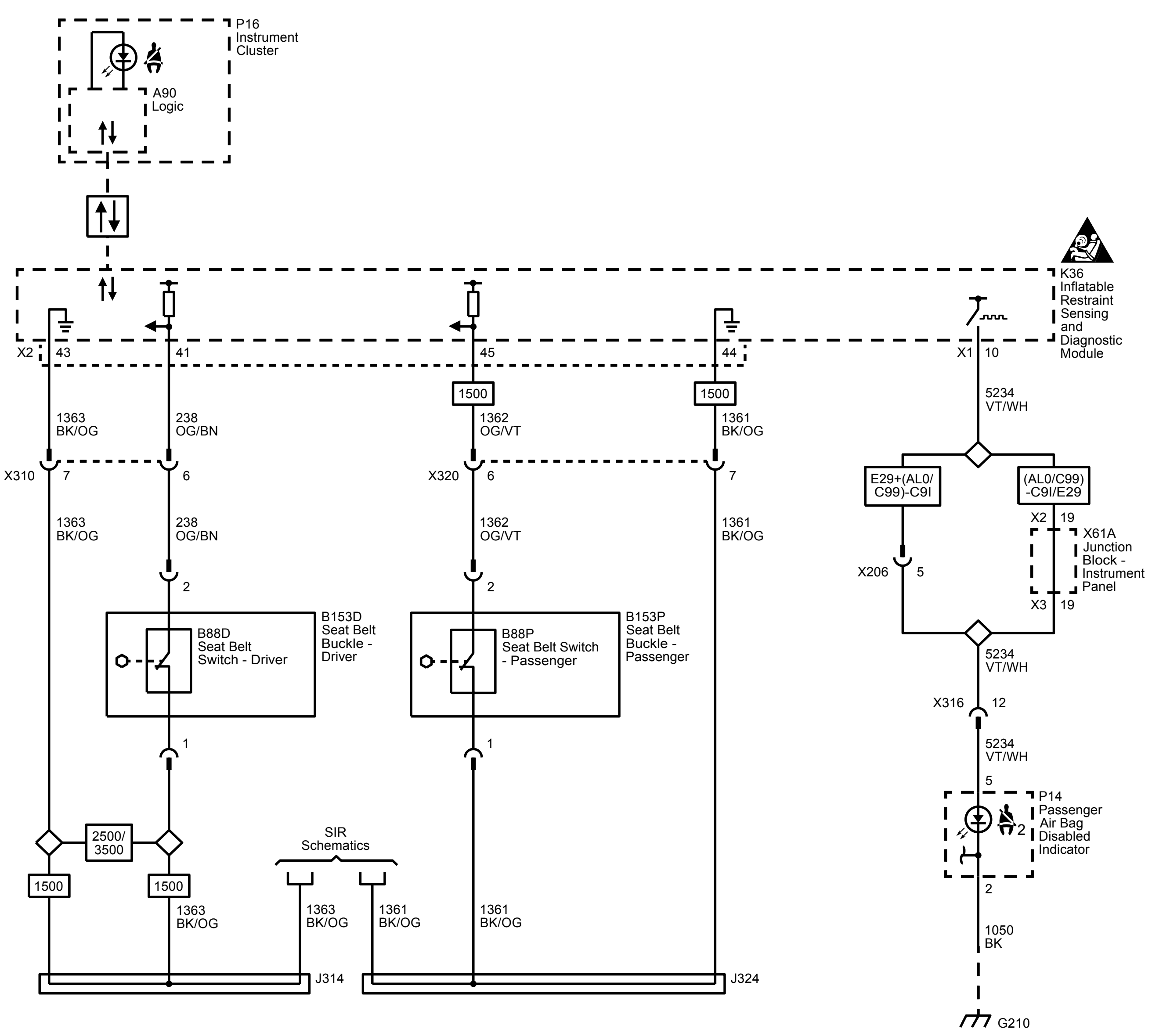
# Safety and Security

## Seat Belts

### Schematic and Routing Diagrams

### Seat Belt Schematics

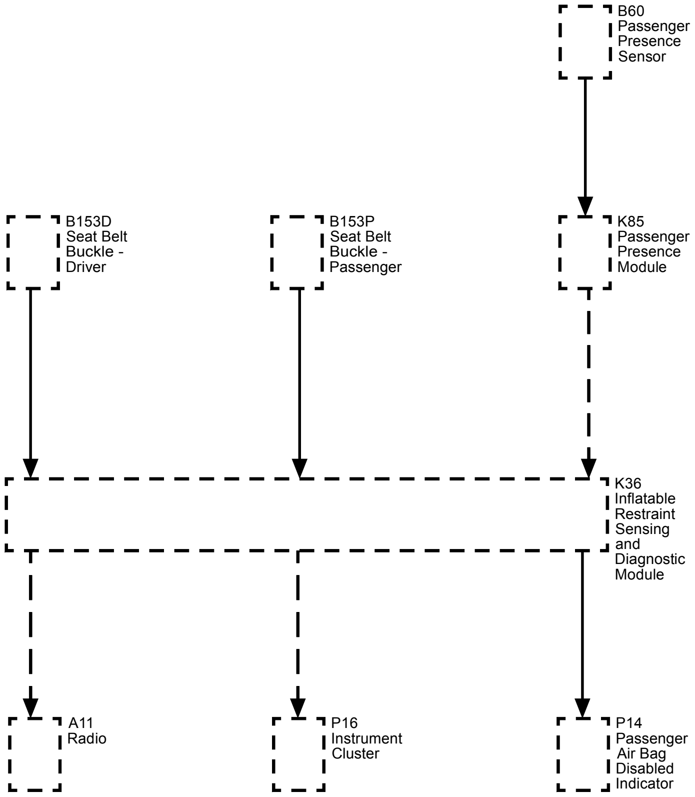
#### Seat Belts


P16
Instrument
Cluster
A90
Logic
K36
Inflatable
Restraint
Sensing
and
Diagnostic
Module
X2
43
41
45
44
X1
10
1500
1500
1363
BK/OG
238
OG/BN
1362
OG/VT
1361
BK/OG
5234
VT/WH
X310
7
6
X320
6
7
E29+(AL0/
C99)-C9I
(AL0/C99)
-C9I/E29
X2
19
X61A
Junction
Block -
Instrument
Panel
X3
19
X206
5
1363
BK/OG
238
OG/BN
1362
OG/VT
1361
BK/OG
2
2
B88D
Seat Belt
Switch - Driver
B153D
Seat Belt
Buckle -
Driver
B88P
Seat Belt Switch
- Passenger
B153P
Seat Belt
Buckle -
Passenger
5234
VT/WH
X316
12
5234
VT/WH
1
1
5
P14
Passenger
Air Bag
Disabled
Indicator
2
2500/
3500
SIR
Schematics
1500
1500
1363
BK/OG
1363
BK/OG
1361
BK/OG
1361
BK/OG
2
1050
BK
J314
J324
G210

# Description and Operation

## Seat Belt System Description and Operation

### Seat Belt with P14 Block Diagram


B60
Passenger Presence Sensor
B153D
Seat Belt Buckle - Driver
B153P
Seat Belt Buckle - Passenger
K85
Passenger Presence Module
K36
Inflatable Restraint Sensing and Diagnostic Module
A11
Radio
P16
Instrument Cluster
P14
Passenger Air Bag Disabled Indicator

**Note:** Not all items shown in block diagram are available in this publication

### Restraint System

**Note:** If the vehicle has been in a collision, refer to CELL Link Error - Link target cell (cell ID 69000) is invalid for this publication.

The vehicle has front and rear seat belts that are the primary means of occupant restraint. Seat belts help to keep the occupants inside the passenger compartment and to gradually reduce the impact forces during the following events:

- Frontal impact type crashes
- Rear impact type crashes
- Side impact type crashes
- Roll-over type crashes

All seat belt retractors have emergency locks. The retractors remain unlocked during normal operation and under normal driving conditions. The retractors remain unlocked during normal conditions in order to allow free movement of the upper body of each occupant. A pendulum locks the seat belt webbing into position. The pendulum causes a locking bar to engage a cog on the spool of the retractor mechanism when the following conditions occur:

- A rapid extraction of the seat belt webbing from the retractor
- An abrupt change in vehicle speed
- An abrupt change in vehicle direction
- Operation of the vehicle on a steep upgrade

- Operation of the vehicle on a downgrade

The seat belts have an automatic locking (cinch) feature. The cinch feature is activated when the seat belt webbing is completely extended from the retractor. The cinch feature prevents the webbing from extending beyond the position from which it is allowed to retract. Use of the cinch feature is recommended for securing a child seat. The cinch feature may be cancelled by allowing the webbing to wind back completely into the retractor. After the cinch feature is cancelled, the webbing is unlocked. After the cinch feature is cancelled, the webbing will extend from the retractor. This vehicle is also equipped with a supplemental inflatable restraint (SIR) system. Refer to CELL Link Error - Link target cell (cell ID 62350) is invalid for this publication.

## Front Seat Belt System

The front seat belt system includes a driver and passenger seat belt pretensioner retractor. Both front seat belt pretensioners includes a seat belt switch in the seat buckle which controls a reminder lamp and a tone alarm.

**Note:** The front passenger seat is equipped with a passenger presence detection sensor, which detects an occupant. If the passenger presence detection sensor detects an empty front passenger seat, then the passenger fasten safety belt indicator will be disabled.

- When the driver seat belt is buckled and the ignition switch is turned ON, the following events will occur:
  - The tone alarm will not operate.
  - The reminder lamp will not operate.
- When the driver seat belt is not buckled and the ignition switch is in the ON position, the following events will occur:
  - The tone alarm will operate for 4–8 seconds and then go OFF.
  - The fasten safety belt indicator will turn ON for 20 seconds, until the driver seat belt is buckled.

## Rear Seat Belt System

The Rear Seat Belt System includes the following components:

- The rear seat belt retractor is located at the wheelhouse panel and attached to the floor panel by the rear seat shoulder belt retractor bracket.
- The rear seat belt buckles and the center seat belt buckle are attached to each seat.

## Child Seat Restraint System

**Warning: A child in a rear-facing child restraint can be seriously injured if the right-front passengers air bag inflates. This is because the back of a rear-facing child restraint would be very close to the inflating air bag. NEVER use a rear-facing child restraint in this vehicle. If a forward-facing child restraint is suitable for your child, ALWAYS move the front passenger seat as far back as it will go and then install the child restraint. Be sure the child restraint position does not conflict with any additional requirements provided by the manufacturer. For more information, refer to the vehicle owners manual and the instruction that came with the child restraint.**

A child in a rear-facing child restraint can be seriously injured if the right-front passengers air bag inflates. This is because the back of a rear-facing child restraint would be very close to the inflating air bag. NEVER use a rear-facing child restraint in this vehicle. If a forward-facing child restraint is suitable for your child, ALWAYS move the front passenger seat as far back as it will go and then install the child restraint. Be sure the child restraint position does not conflict with any additional requirements provided by the manufacturer. For more information, refer to the vehicle owners manual and the instruction that came with the child restraint.

The child seat may only be used in a forward facing seating location. The child seat should be installed and secured according to the manufacturer's directions. If the child seat has a top strap, the seat will need to be anchored. Passengers should not be allowed to sit at locations where the seat belts are being used to secure the child seat.

All vehicles are equipped with a dual-mode type retractor with emergency and automatic locking features. The automatic locking feature is for restraint of a child seat. The child seat can be secured by pulling the seat belt all the way out to lock it. Then tighten the seat belt around the child seat.

If a child seat is to be used in the second seat position, a special dealer-installed anchor must be used in order to anchor the child seat top strap. This only applies to the seats designed with the top strap provision and for the vehicles sold in Canada. In order to ensure the correct top strap angle, the child seat is only to be used at the seating position for which the top strap anchor is installed.

## Fasten Safety Belt Indicators

There is a fasten safety belt indicator for this vehicle. The driver fasten safety belt reminder is displayed in the instrument cluster. The fasten safety belt indicator may only be ON during RUN. The fasten safety belt indicator illuminates under the following conditions:

- During the bulb check
- The inflatable restraint sensing and diagnostic module (SDM) sends the status of the driver seat belt to the instrument cluster via serial data. If any of the seat belts are unfastened, the instrument cluster will send a message requesting a chime sound to be turned ON after a bulb check.

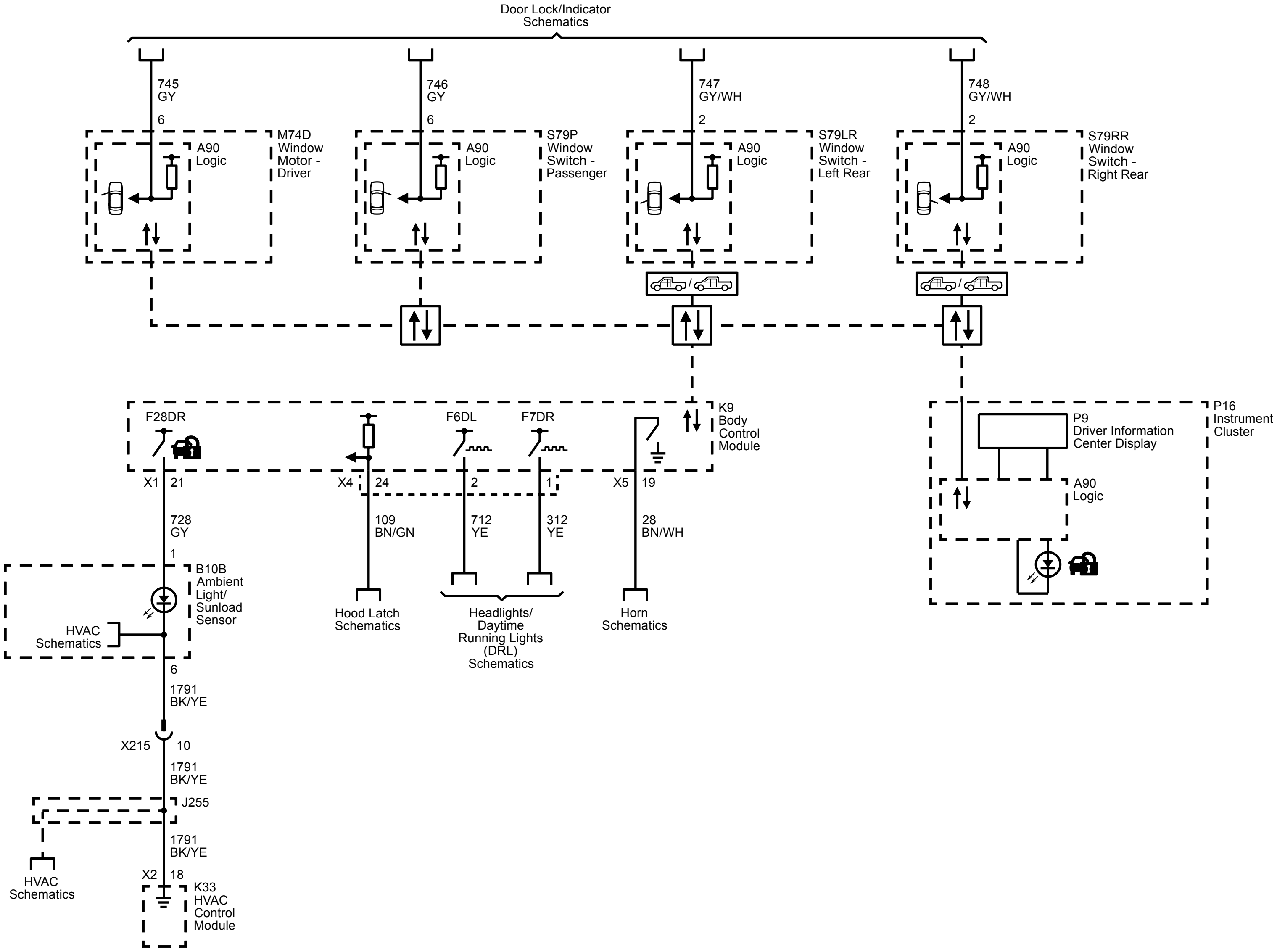
# Safety and Security

## Theft Deterrent

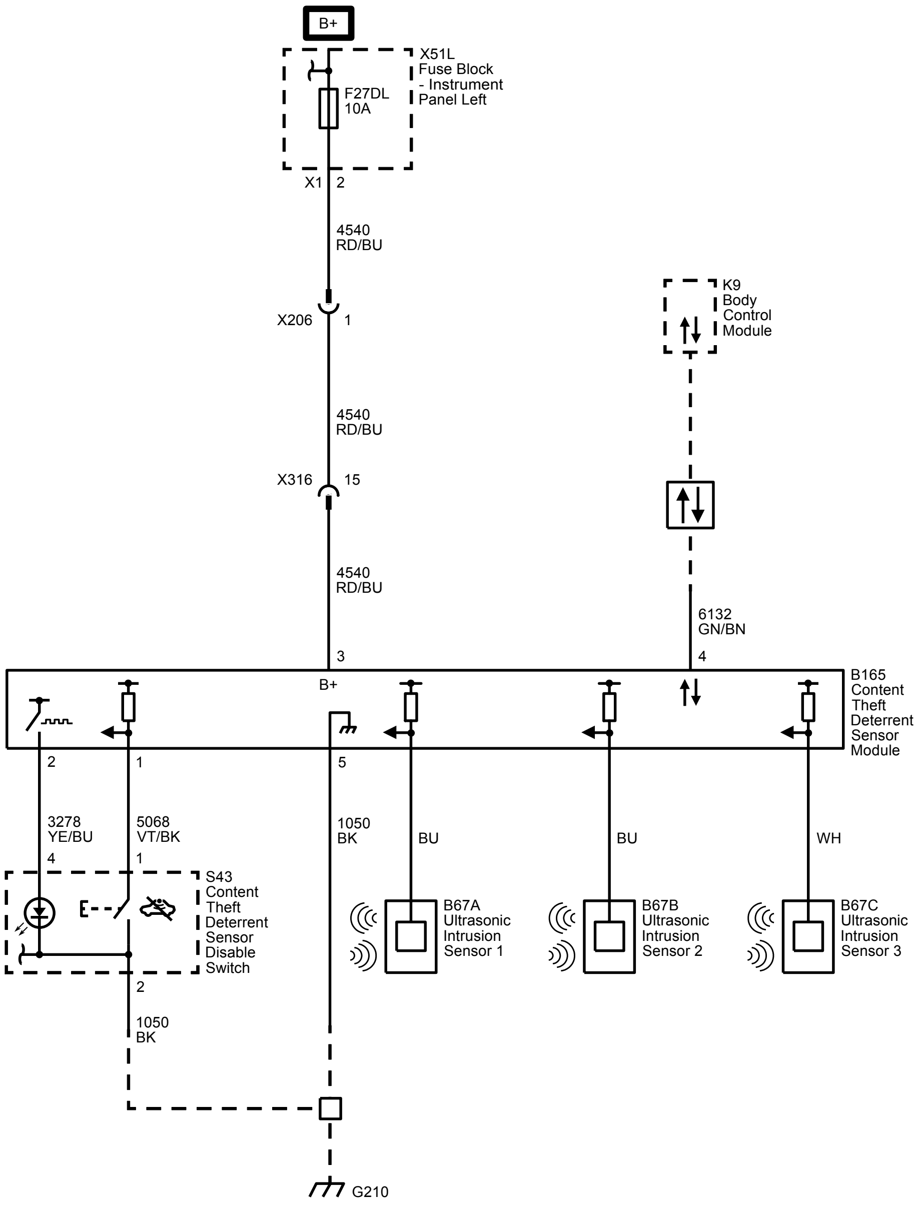
### Schematic and Routing Diagrams

### Theft Deterrent System Schematics

#### Theft Deterrent System


Door Lock/Indicator Schematics
745 GY
6
A90 Logic
M74D Window Motor - Driver
746 GY
6
A90 Logic
S79P Window Switch - Passenger
747 GY/WH
2
A90 Logic
S79LR Window Switch - Left Rear
748 GY/WH
2
A90 Logic
S79RR Window Switch - Right Rear
F28DR
F6DL
F7DR
K9 Body Control Module
X1
21
X4
24
2
1
X5
19
728 GY
109 BN/GN
712 YE
312 YE
28 BN/WH
1
B10B Ambient Light/ Sunload Sensor
HVAC Schematics
Hood Latch Schematics
Headlights/ Daytime Running Lights (DRL) Schematics
Horn Schematics
6
1791 BK/YE
X215
10
1791 BK/YE
J255
1791 BK/YE
HVAC Schematics
X2
18
K33 HVAC Control Module
P16 Instrument Cluster
P9 Driver Information Center Display
A90 Logic

## Inclination and Intrusion Sensing and Alarm (UTU and UTV)


B+
X51L Fuse Block - Instrument Panel Left
F27DL 10A
X1 2
4540 RD/BU
X206 1
4540 RD/BU
X316 15
4540 RD/BU
K9 Body Control Module
6132 GN/BN
3
4
B+
B165 Content Theft Deterrent Sensor Module
2
1
5
3278 YE/BU
5068 VT/BK
1050 BK
BU
BU
WH
4
1
S43 Content Theft Deterrent Sensor Disable Switch
2
1050 BK
B67A Ultrasonic Intrusion Sensor 1
B67B Ultrasonic Intrusion Sensor 2
B67C Ultrasonic Intrusion Sensor 3
G210

# Description and Operation

## Theft Systems Description and Operation

When armed, the content theft deterrent system is designed to deter vehicle content theft by pulsing the horns and exterior lamps for approximately 30 s when an unauthorized vehicle entry is detected. However, the content theft deterrent system does not affect engine starting.

An unauthorized entry can be any of the following with the content theft deterrent system armed:

- Unauthorized entry into the underhood area
- Unauthorized entry into the rear compartment
- When any door is opened without using the UNLOCK command from a keyless entry transmitter
- After a battery reconnect, if the battery was disconnected with the content theft deterrent system armed

The components of the content theft deterrent system are:

- Body control module (BCM)
- Keyless entry control module (RPO ATH)
- Remote control door lock receiver
- Security indicator
- Door ajar switches
- Rear compartment ajar switch
- Hood ajar switch

### Arming the Content Theft Deterrent System

Use the following procedure in order to arm the system:

1. Place the shift lever in P (park).
2. Turn OFF the ignition.
3. Open any door.

   **Note:** The system is not armed if the doors are locked manually; the power door lock switch or remote keyless entry transmitter must be used to arm the content theft deterrent system.
4. Lock the doors with the power door lock switch or by pressing the LOCK button on the transmitter. The system is in standby mode and will not start the arming timer until all doors are closed.
5. The system will begin the arm sequence immediately after the last door is closed. If the keyless entry transmitter is used the arm the system after the vehicle doors are closed, the arm sequence will begin as soon as the LOCK command is received by the transmitter.
6. Pressing the LOCK button on the keyless entry transmitter a second time will bypass the delayed arming function and force the system to arm.

### Locking the Vehicle Without Arming the Content Theft Deterrent System

Locking the vehicle may be accomplished without arming the content theft deterrent system. Use of the manual door locks will lock the vehicle, but will not arm the content theft deterrent system.

### Disarming an Armed System/Silencing an Alarm

If system arming has been requested by the power door lock switch or the keyless entry transmitter, it must be disarmed.

**Note:** Disconnecting the battery or removing fuses does not disable the arm or alarm modes, since the BCM stores the content theft deterrent mode status in memory.

- To disarm the content theft deterrent system in standby mode, perform one of the following:
  - Press the UNLOCK button on the keyless entry transmitter.
  - Approach the vehicle with a valid keyless entry transmitter and pull the vehicle door handle (RPO ATH).
  - Insert a valid key into the ignition and switch to the ON position.
- To disarm the content theft deterrent system in the armed mode (non-event) or when activated (during an alarm event):
  - Press the UNLOCK button on the keyless entry transmitter.
  - Insert a valid key into the ignition and switch to the ON position

### Content Theft Deterrent Circuit Description

The following is a description of each component used in the content theft deterrent system:

### Body Control Module

The content theft deterrent system is an internal function of the BCM which utilizes serial data and various switch inputs information to perform content theft deterrent functions. When the BCM detects an unauthorized entry, it activates the horns and exterior lamps. The BCM has 4 basic modes (disarmed, standby, armed, and alarm) for operating the content theft deterrent system. The different modes are described below.

1. The BCM has the content theft deterrent system in a disarmed mode until the following conditions are detected:
   - Ignition key turned to the OFF position.
   - Doors locked by either the power door lock switch or the LOCK button on the transmitter.

2. The BCM enters the standby mode when the above conditions are detected. If a door was already opened when the arm mode was requested, the standby mode does not start the timer until the last door is closed.
3. When the last door is closed, a 15 s timer is activated. Once the timer has expired, the BCM enters the armed mode. After this delay, any unauthorized entry will activate the alarm mode.
4. When the BCM detects an unauthorized entry, the BCM enters the alarm mode. The BCM activates the horns and exterior lamps for 30 s. This is followed by a three minute time-out with the horn no longer active. If no new intrusions are detected after the time-out, the horn is not active. The system must be disarmed or the intrusion condition removed after the time-out for the system to exit alarm mode.

### Keyless Entry Control Module (RPO ATH)

The passive keyless entry system can arm and disarm the content theft deterrent system. When a valid keyless entry transmitter is detected while attempting to passively access the vehicle, the keyless entry module will send a message via serial data to disarm the content theft deterrent system.

### Remote Control Door Lock Receiver

The keyless entry system can arm and disarm the content theft deterrent system. When the remote control door lock receiver receives a door lock or unlock signal from the transmitter, the remote control door lock receiver sends a message to the BCM via serial data to perform the appropriate arm/disarm functions.

### Security Indicator

The security LED is illuminated on the upper instrument panel by the BCM. The content theft deterrent system uses the security LED to inform the driver of system status prior to arming.

### Door Ajar Switches

The content theft deterrent system uses the door ajar switches as a status indicator to activate the alarm. The door ajar switches are monitored by the body control module via a discrete input from each door ajar switch. If the BCM receives a signal indicating a door is opened when the content theft deterrent system is armed, the BCM activates the alarm.

### Hood Ajar Switch

The content theft deterrent system uses the hood ajar switch as a status indicator to activate the alarm. The BCM monitors the hood ajar switch via a discrete input from the switch. If the BCM receives a signal indicating the hood has been opened when the content theft deterrent system is armed, the BCM activates the alarm.

### Rear Compartment Ajar Switch

The content theft deterrent system uses the rear compartment ajar switch as a status indicator to activate the alarm. The BCM monitors the rear compartment ajar switch via a discrete input from the switch. If the BCM receives a signal indicating the rear compartment has been opened when content theft deterrent system is armed, the BCM activates the alarm.

### Inputs

The BCM monitors the following inputs for content theft deterrent:

- The door ajar switches
- The keyless entry transmitter LOCK/UNLOCK buttons; a message from the remote control door lock receiver
- The BCM uses the immobilizer status for disarming the system or silencing an alarm when the correct vehicle key is used to start the vehicle
- The rear compartment ajar switch
- The hood ajar switch

### Outputs

The BCM controls the following for content theft deterrent:

- The horn relay
- The exterior lamps

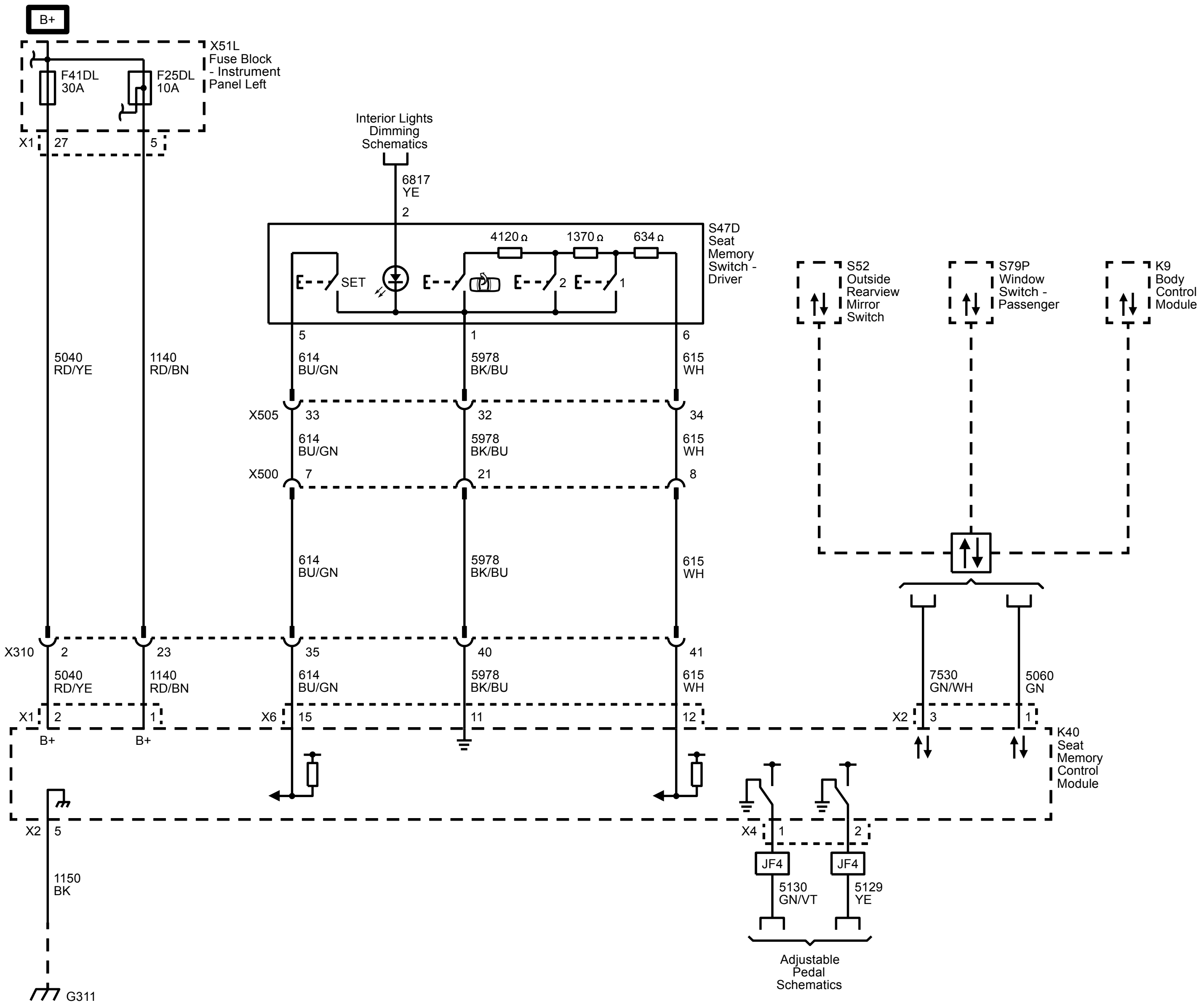
# Seats

## Power Seats

### Schematic and Routing Diagrams

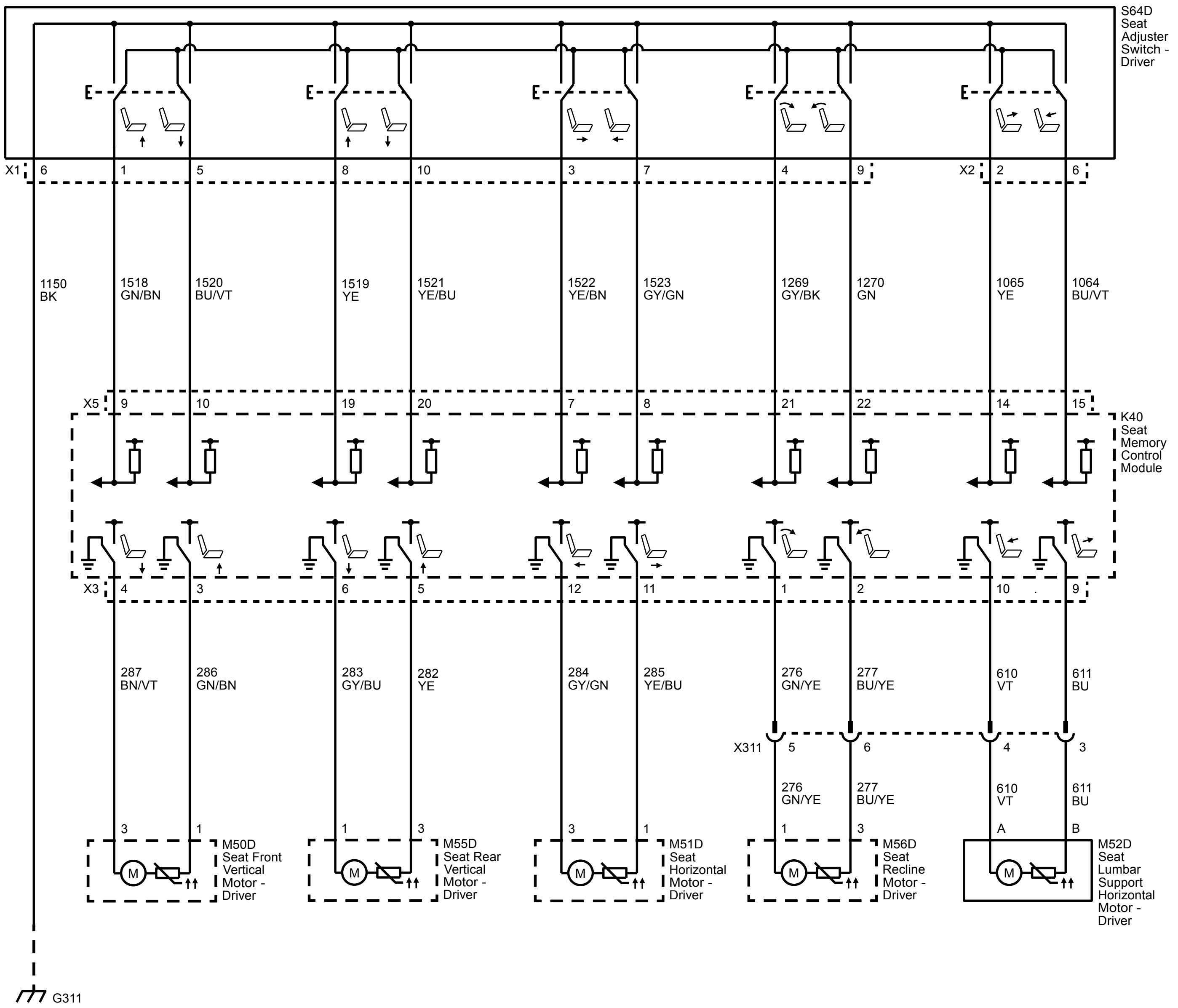
#### Driver Seat Schematics

#### Power, Ground, Serial Data and Memory Switch (A45)

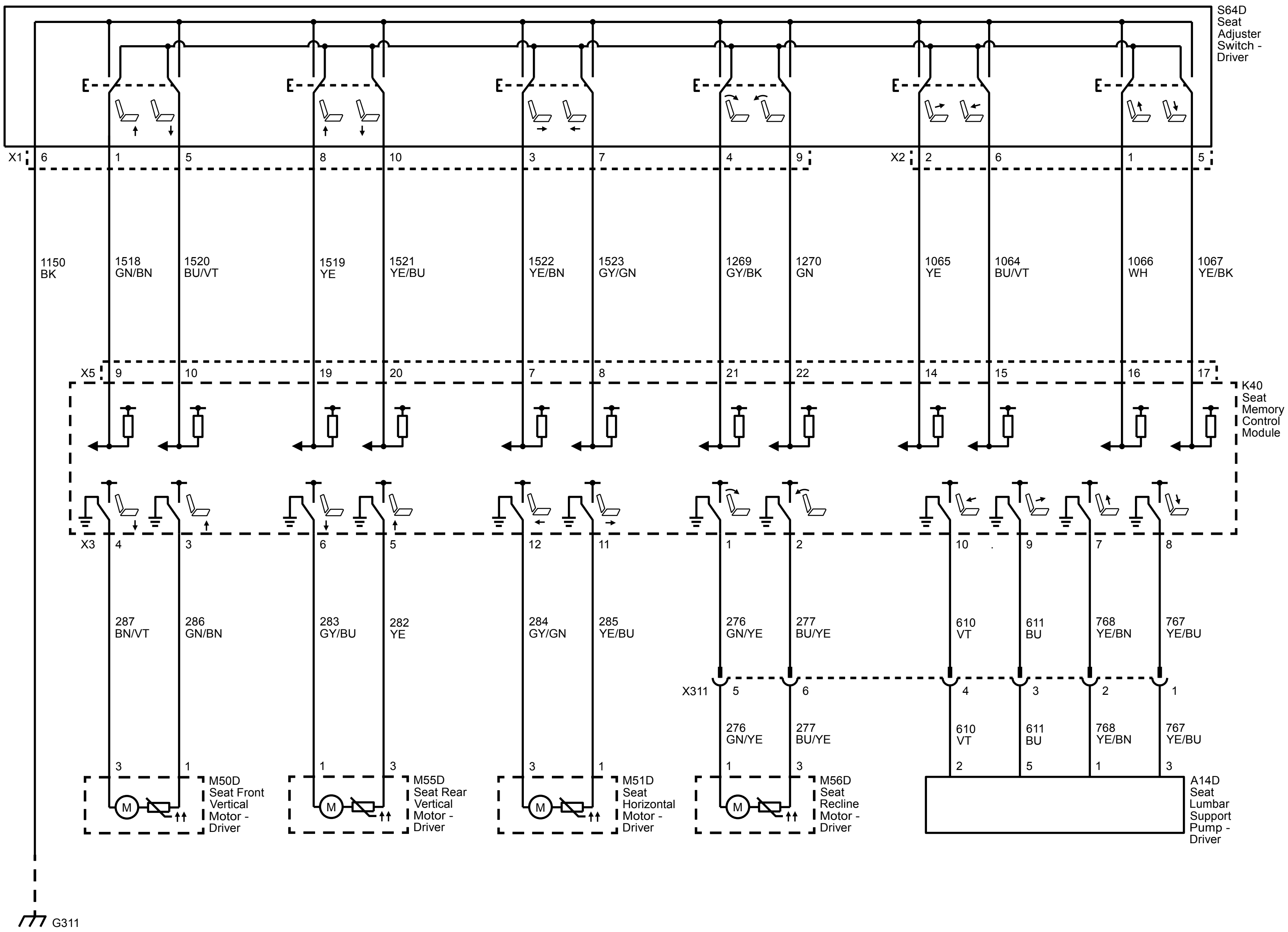


B+
X51L
Fuse Block
- Instrument
Panel Left
F41DL
30A
F25DL
10A
X1
27
5
Interior Lights
Dimming
Schematics
6817
YE
2
4120 Ω
1370 Ω
634 Ω
S47D
Seat
Memory
Switch -
Driver
SET
2
1
5
1
6
S52
Outside
Rearview
Mirror
Switch
S79P
Window
Switch -
Passenger
K9
Body
Control
Module
5040
RD/YE
1140
RD/BN
614
BU/GN
5978
BK/BU
615
WH
X505
33
32
34
614
BU/GN
5978
BK/BU
615
WH
X500
7
21
8
614
BU/GN
5978
BK/BU
615
WH
X310
2
23
35
40
41
5040
RD/YE
1140
RD/BN
614
BU/GN
5978
BK/BU
615
WH
7530
GN/WH
5060
GN
X1
2
1
X6
15
11
12
X2
3
1
B+
B+
K40
Seat
Memory
Control
Module
X2
5
X4
1
2
JF4
JF4
1150
BK
5130
GN/VT
5129
YE
Adjustable
Pedal
Schematics
G311

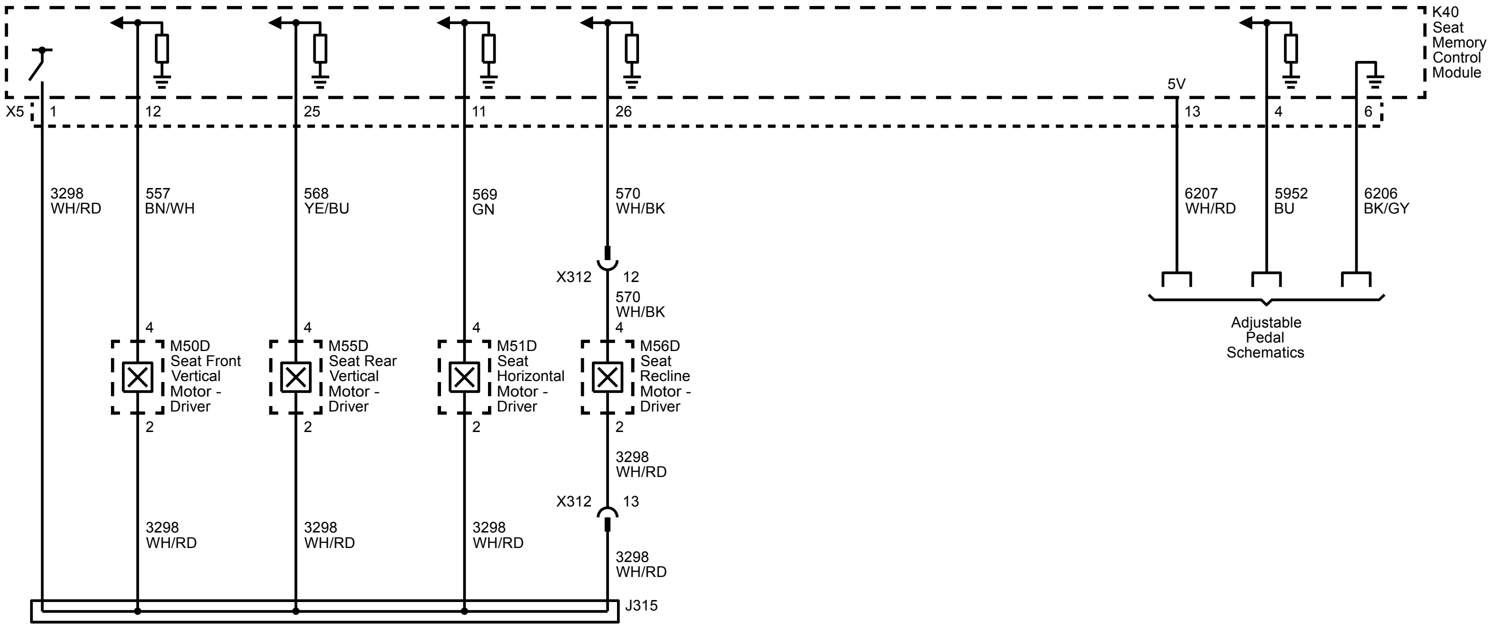
## Controls and Motors (A45 without GAJ or Y91)


S64D
Seat
Adjuster
Switch -
Driver
X1
6
1
5
8
10
3
7
4
9
X2
2
6
1150
BK
1518
GN/BN
1520
BU/VT
1519
YE
1521
YE/BU
1522
YE/BN
1523
GY/GN
1269
GY/BK
1270
GN
1065
YE
1064
BU/VT
X5
9
10
19
20
7
8
21
22
14
15
K40
Seat
Memory
Control
Module
X3
4
3
6
5
12
11
1
2
10
9
287
BN/VT
286
GN/BN
283
GY/BU
282
YE
284
GY/GN
285
YE/BU
276
GN/YE
277
BU/YE
610
VT
611
BU
X311
5
6
4
3
276
GN/YE
277
BU/YE
610
VT
611
BU
3
1
1
3
3
1
1
3
A
B
M
M50D
Seat Front
Vertical
Motor -
Driver
M
M55D
Seat Rear
Vertical
Motor -
Driver
M
M51D
Seat
Horizontal
Motor -
Driver
M
M56D
Seat
Recline
Motor -
Driver
M
M52D
Seat
Lumbar
Support
Horizontal
Motor -
Driver
G311

## Controls and Motors (A45 with GAJ or Y91)

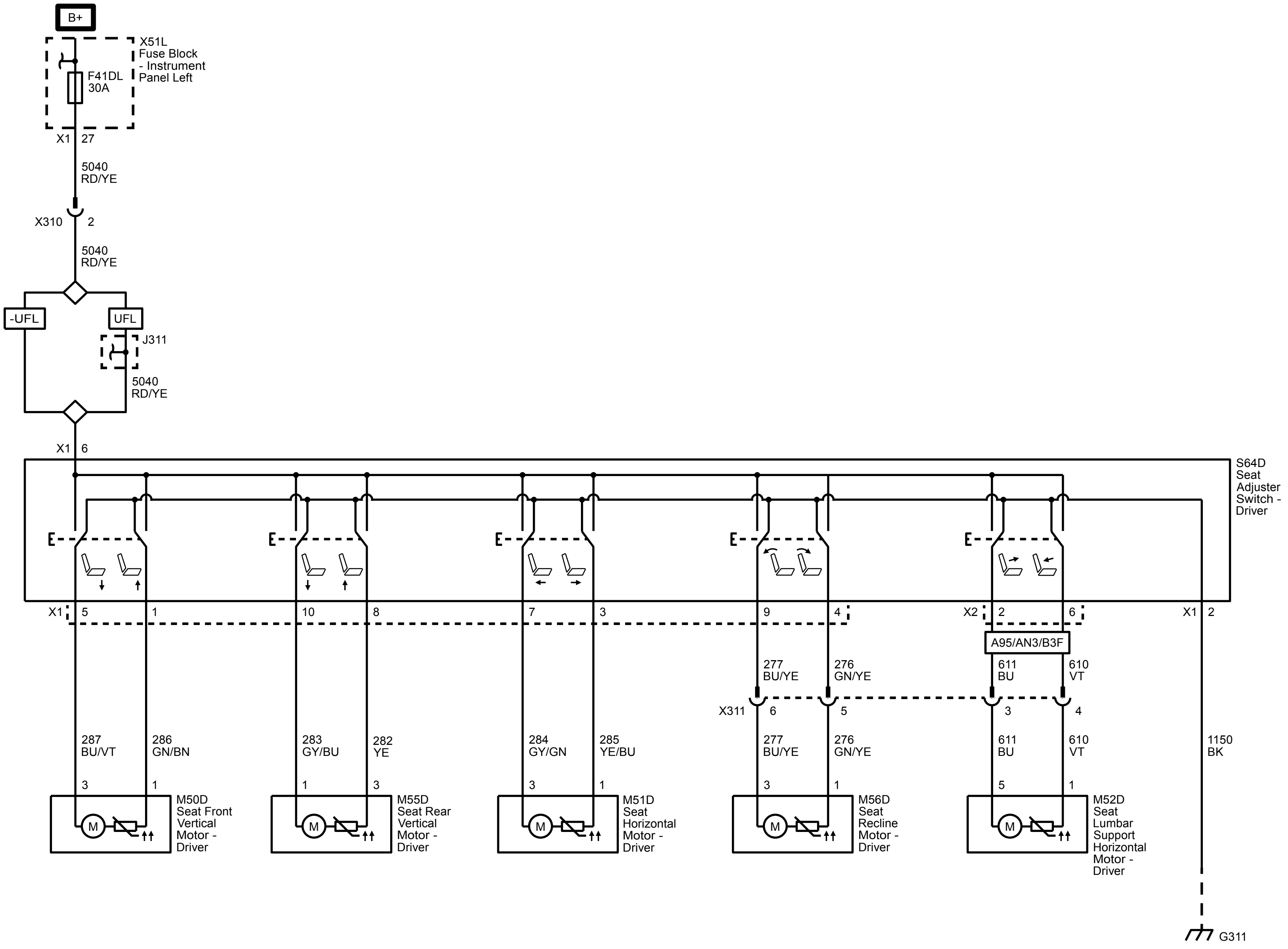

S64D
Seat
Adjuster
Switch -
Driver
X1
6
1
5
8
10
3
7
4
9
X2
2
6
1
5
1150
BK
1518
GN/BN
1520
BU/VT
1519
YE
1521
YE/BU
1522
YE/BN
1523
GY/GN
1269
GY/BK
1270
GN
1065
YE
1064
BU/VT
1066
WH
1067
YE/BK
X5
9
10
19
20
7
8
21
22
14
15
16
17
K40
Seat
Memory
Control
Module
X3
4
3
6
5
12
11
1
2
10
9
7
8
287
BN/VT
286
GN/BN
283
GY/BU
282
YE
284
GY/GN
285
YE/BU
276
GN/YE
277
BU/YE
610
VT
611
BU
768
YE/BN
767
YE/BU
X311
5
6
4
3
2
1
276
GN/YE
277
BU/YE
610
VT
611
BU
768
YE/BN
767
YE/BU
3
1
M
M50D
Seat Front
Vertical
Motor -
Driver
1
3
M
M55D
Seat Rear
Vertical
Motor -
Driver
3
1
M
M51D
Seat
Horizontal
Motor -
Driver
1
3
M
M56D
Seat
Recline
Motor -
Driver
2
5
1
3
A14D
Seat
Lumbar
Support
Pump -
Driver
G311

# Position Sensors (A45)


K40
Seat
Memory
Control
Module
X5
1
12
25
11
26
5V
13
4
6
3298
WH/RD
557
BN/WH
568
YE/BU
569
GN
570
WH/BK
6207
WH/RD
5952
BU
6206
BK/GY
X312
12
570
WH/BK
4
4
4
4
M50D
Seat Front
Vertical
Motor -
Driver
M55D
Seat Rear
Vertical
Motor -
Driver
M51D
Seat
Horizontal
Motor -
Driver
M56D
Seat
Recline
Motor -
Driver
2
2
2
2
3298
WH/RD
X312
13
3298
WH/RD
3298
WH/RD
3298
WH/RD
3298
WH/RD
J315
Adjustable
Pedal
Schematics

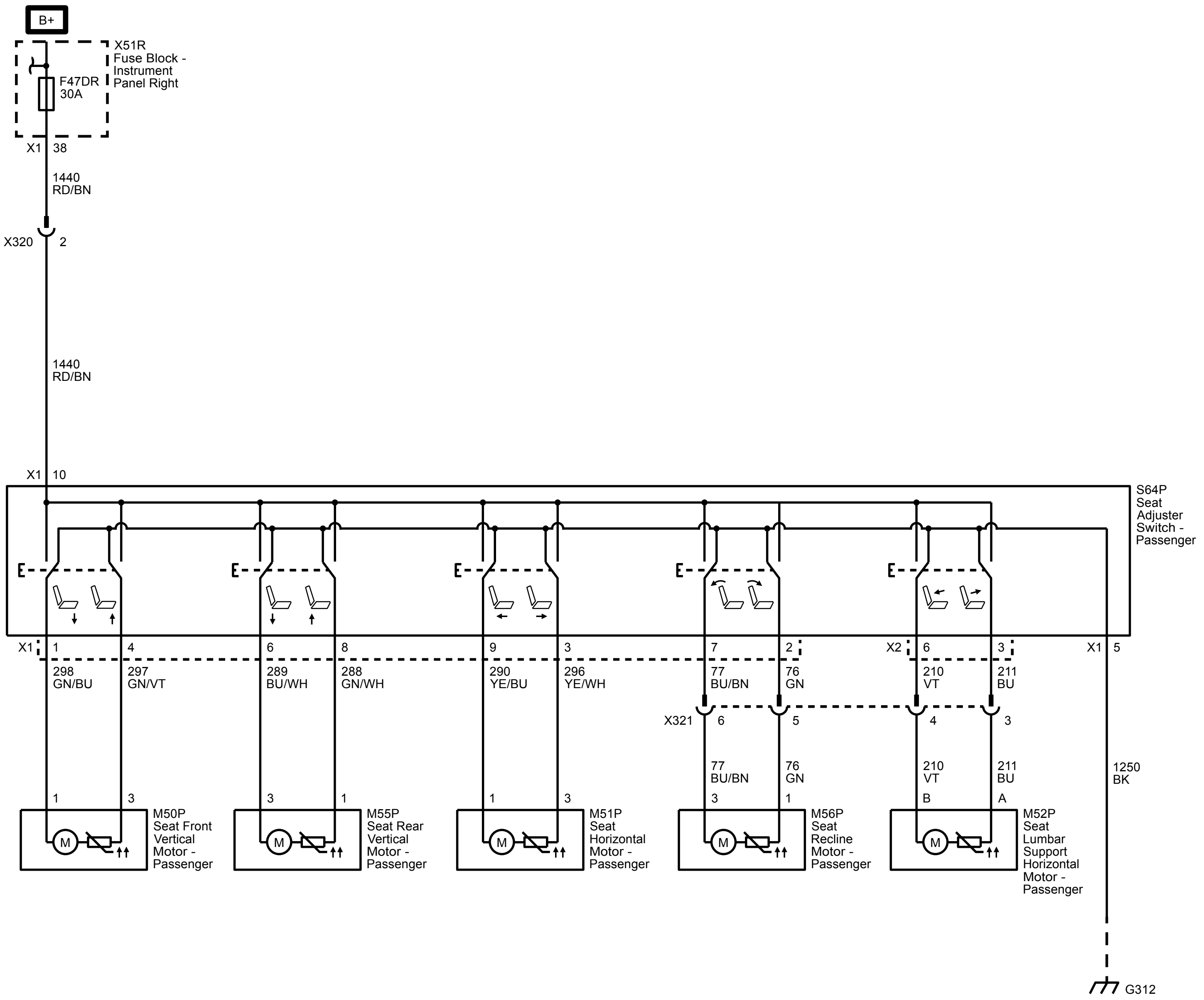
## Power Seat (without A45)

LOC
DESC


B+
X51L
Fuse Block
- Instrument
Panel Left
F41DL
30A
X1 27
5040
RD/YE
X310 2
5040
RD/YE
-UFL
UFL
J311
5040
RD/YE
X1 6
S64D
Seat
Adjuster
Switch -
Driver
X1 5 1 10 8 7 3 9 4
X2 2 6
X1 2
A95/AN3/B3F
277
BU/YE
276
GN/YE
611
BU
610
VT
X311 6 5 3 4
287
BU/VT
286
GN/BN
283
GY/BU
282
YE
284
GY/GN
285
YE/BU
277
BU/YE
276
GN/YE
611
BU
610
VT
1150
BK
3 1
1 3
3 1
3 1
5 1
M
M50D
Seat Front
Vertical
Motor -
Driver
M55D
Seat Rear
Vertical
Motor -
Driver
M51D
Seat
Horizontal
Motor -
Driver
M56D
Seat
Recline
Motor -
Driver
M52D
Seat
Lumbar
Support
Horizontal
Motor -
Driver
G311

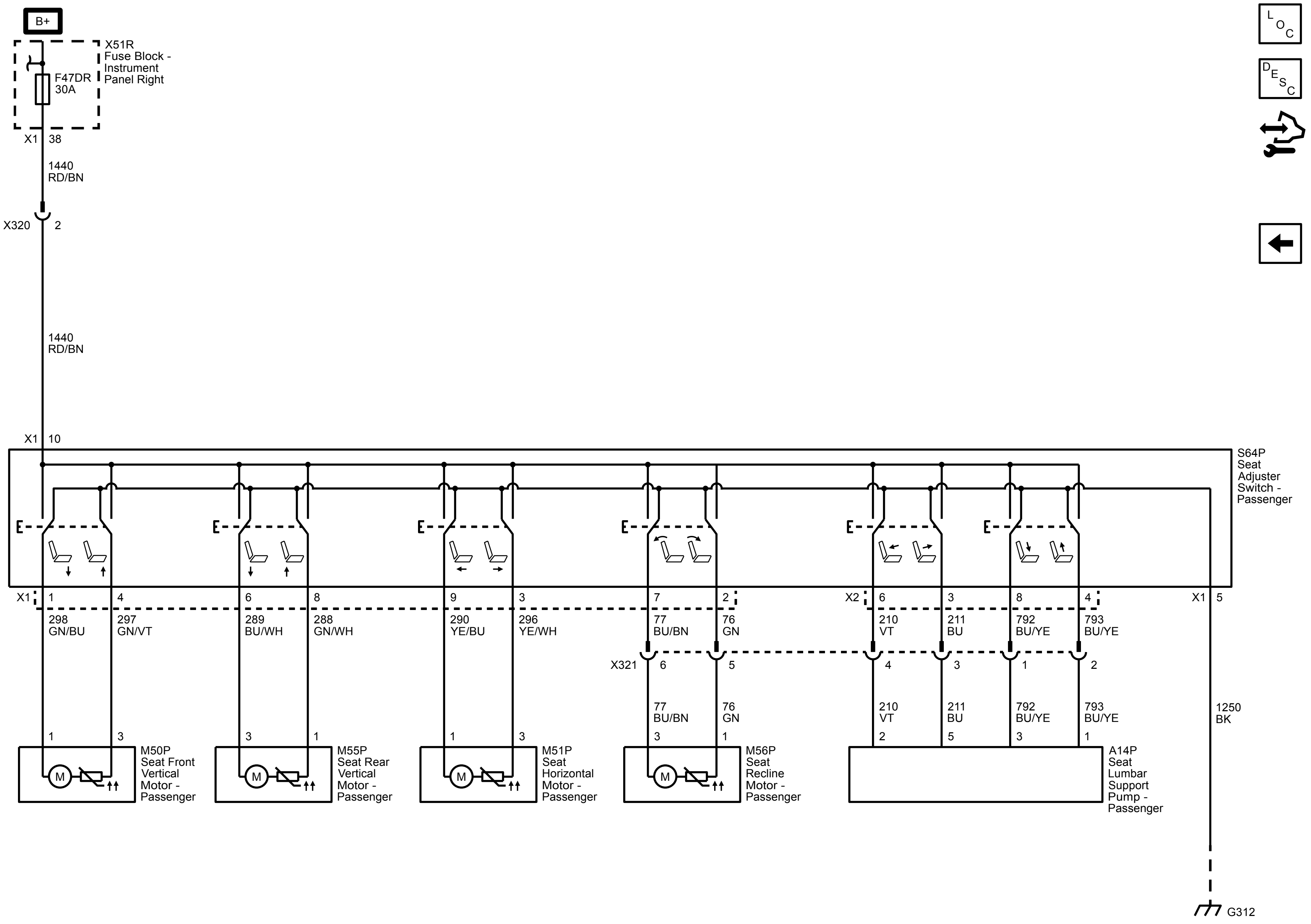
# Passenger Seat Schematics

## Power Seat (without GAJ or Y91)



B+
X51R
Fuse Block - Instrument Panel Right
F47DR 30A
X1 38
1440 RD/BN
X320 2
1440 RD/BN
X1 10
S64P Seat Adjuster Switch - Passenger
X1 1
4
6
8
9
3
7
2
X2 6
3
X1 5
298 GN/BU
297 GN/VT
289 BU/WH
288 GN/WH
290 YE/BU
296 YE/WH
77 BU/BN
76 GN
210 VT
211 BU
X321 6
5
4
3
77 BU/BN
76 GN
210 VT
211 BU
1250 BK
1
3
3
1
1
3
3
1
B
A
M
M50P Seat Front Vertical Motor - Passenger
M
M55P Seat Rear Vertical Motor - Passenger
M
M51P Seat Horizontal Motor - Passenger
M
M56P Seat Recline Motor - Passenger
M
M52P Seat Lumbar Support Horizontal Motor - Passenger
G312

## Power Seat (GAJ or Y91)


B+
X51R
Fuse Block - Instrument Panel Right
F47DR
30A
X1 38
1440
RD/BN
X320 2
1440
RD/BN
X1 10
S64P
Seat Adjuster Switch - Passenger
X1 1 4 6 8 9 3 7 2
X2 6 3 8 4
X1 5
298 GN/BU
297 GN/VT
289 BU/WH
288 GN/WH
290 YE/BU
296 YE/WH
77 BU/BN
76 GN
210 VT
211 BU
792 BU/YE
793 BU/YE
X321 6 5 4 3 1 2
77 BU/BN
76 GN
210 VT
211 BU
792 BU/YE
793 BU/YE
1250
BK
1 3
M
M50P
Seat Front Vertical Motor - Passenger
3 1
M
M55P
Seat Rear Vertical Motor - Passenger
1 3
M
M51P
Seat Horizontal Motor - Passenger
3 1
M
M56P
Seat Recline Motor - Passenger
2 5 3 1
A14P
Seat Lumbar Support Pump - Passenger
G312
LOC
DESC

# Description and Operation

## Lumbar Support Description and Operation (With Memory A45)

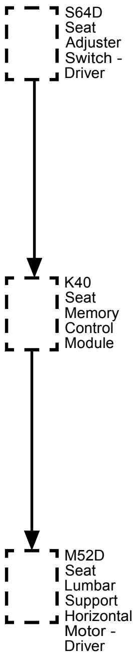
### Lumbar Support Components

The driver seat lumbar support system with memory (A45) consists of the following components:

- Seat adjuster switch
- Seat memory control module
- Seat lumbar support horizontal motor

### Lumbar Circuit Description

### Lumbar Block Diagram


S64D Seat Adjuster Switch - Driver
K40 Seat Memory Control Module
M52D Seat Lumbar Support Horizontal Motor - Driver

Ground is supplied at all times to the driver seat adjuster switch through the switch ground circuit and ground connection. The seat memory control module supplies a low current voltage to each signal circuit of the seat lumbar support switch. When the seat switches are pressed, the appropriate signal circuit from the seat memory control module is pulled low through the switch contacts indicating the lumbar command. In response to this signal, the seat memory control module applies battery voltage through the driver seat lumbar motor forward control circuit and ground through the driver seat lumbar motor rearward control circuit to the motor. The motor runs to drive the lumbar support forward towards the occupants back until the switch is released. Moving the lumbar support rearward works similarly to moving the lumbar support forward, except that battery positive voltage and ground are applied on the opposite

## Lumbar Support Description and Operation (Without Memory A45)

### Lumbar Support Components

The power seat lumbar support systems consist of the following components:

- Seat lumbar switch
- Lumbar support motor

The seat lumbar switch provides both power and ground to the lumbar support motor. The motor contains an electronic circuit breaker (PTC) that will reset only after voltage has been removed from the motor. The motor moves the lumbar support forward and rearward.

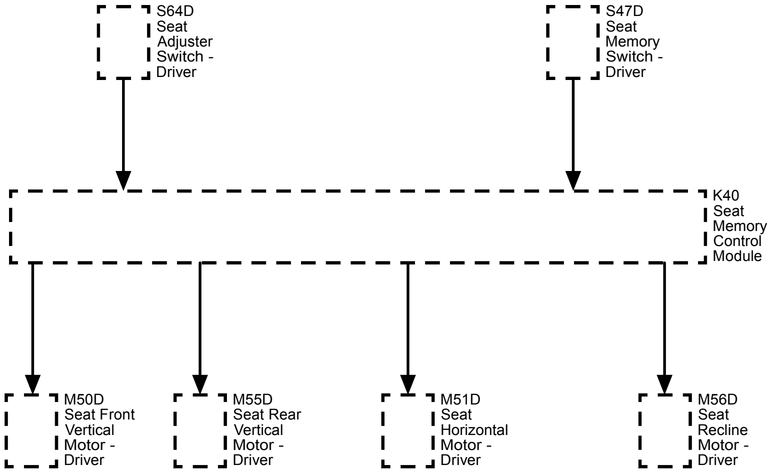
When the lumbar switch is operated to move the lumbar support rearward, battery positive voltage is applied through the lumbar rearward switch contacts and the lumbar motor rearward control circuit to the lumbar support motor. The motor is grounded through the lumbar forward switch contacts and the lumbar motor forward control circuit to the motor. The motor runs to drive the lumbar support rearward away from the occupant's back until the switch is released. Moving the lumbar support forward works similarly to moving the lumbar support rearward, except that battery positive voltage and ground are applied on opposite circuits causing the motor to run in the opposite direction.

## Memory Seats Description and Operation

The memory seat system consists of the following components:

- Seat memory control module
- Driver seat adjuster switch
- Driver seat memory switch
- Driver seat horizontal motor
- Driver seat front vertical motor
- Driver seat rear vertical motor
- Driver seat recline motor
- Driver seat horizontal motor position sensor
- Driver seat front vertical motor position sensor
- Driver seat rear vertical motor position sensor
- Driver seat recline motor position sensor

### Memory Seat Block Diagram


S64D Seat Adjuster Switch - Driver
S47D Seat Memory Switch - Driver
K40 Seat Memory Control Module
M50D Seat Front Vertical Motor - Driver
M55D Seat Rear Vertical Motor - Driver
M51D Seat Horizontal Motor - Driver
M56D Seat Recline Motor - Driver

### Driver Seat Adjuster Switch

The seat memory control module supplies a low current voltage to each signal circuit of the seat adjuster switch. When the driver seat adjuster switches are pressed, the appropriate signal circuit from the seat memory control module is pulled low through the switch contacts indicating the power seat command. The seat memory control module then commands the appropriate driver seat motor to move in response to the switch signal.

### Seat Memory Control Module Power and Grounds

Battery voltage is supplied at all times to the seat memory control module through two different circuits. One circuit is used by the module to apply power to the driver seat motors and lumbar motors, if equipped, when commanded ON. The second battery voltage circuit is used to power up module and supply a reference voltage to the seat position sensors. Ground is provided to the seat memory control module through a single ground circuit and ground connection.

### Seat Motors

There are 4 motors that move the position of the seat. These are the seat horizontal motor, seat front vertical motor, seat rear vertical motor, and the seat back recline motor. The horizontal motor moves the entire seat forward and rearward. The seat front vertical motor moves the front of the seat cushion up or down. The seat rear vertical motor moves the rear of the seat cushion up and down. Due to the seat adjuster switch design the front tilt and the seat height adjuster motor cannot be operated at the same time The recline motor moves the angle of the seat back forward or rearward.

The seat memory control module controls all seat and lumbar motors via half bridges that are connected to a single power rail internal to the module. The module connects all seat and lumbar motor outputs to a common ground whenever they are not in operation. The seat memory control module checks to see if any motor control circuits are shorted to ground or voltage before enabling any seat or lumbar motor. All of the motors operate independently of each other. Each motor contains a electronic circuit breaker (PTC), which will reset only after voltage has been removed from the motor.

All seat motors are reversible. For example, when a seat switch is pressed to move the entire seat forward, ground is applied through the switch contacts onto the seat horizontal forward switch signal circuit to the seat memory control module. In response to this signal, the module applies battery voltage through the driver seat horizontal motor forward control circuit and ground through the driver seat horizontal motor rearward control circuit to the motor. The motor runs in order to drive the entire seat forward. Moving the entire seat rearward works similarly to moving the entire seat forward, except that battery voltage and ground are applied on the opposite circuits causing the motor to run in the opposite direction. All of the motors are powered this way.

## Position Sensors

To monitor seat position, each seat motor has an internal 2-wire hall-effect position sensor. The seat memory control module supplies all the sensors with a common 12 V reference when the seat is moving and a unique signal circuit for each sensor. During seat motor operation, the position sensors provide a specific number of pulse signals for every revolution of the motor shaft.

The seat memory control module determines seat position by keeping a running counter where movement in the forward/upward direction adds counts and movement in the rearward/down direction subtracts counts. The value of the counter will be in the range of 0 – 65,535

The value of these counters, which represent seat positions, are stored in memory for future seat memory recall operation. During a memory seat position recall, the seat memory control module moves the seat in such a way to return it the stored counter value.

## Memory Functions

In all power modes except crank, memory recalls can be initiated by pressing and holding one of the memory position buttons until the seat reaches the stored memory position associated with the activated button. This is called a supervised recall.

The seat memory control module supplies a ground at all times through a low reference circuit to the driver seat memory switch. The module also supplies memory set and memory recall signal circuits to the seat memory switch. When a memory recall switch is pressed, the signal circuit from the seat memory control module is pulled low through the switch contacts and a series of resistors indicating the memory recall request. In response to this signal, the seat memory control module commands the appropriate seat motors to move to the pre-recorded seat positions stored in memory.

Refer to the Owner’s Manual for storing memory positions.

## Auto Memory Recall and Easy Exit

The seat memory control module will not perform Auto Memory Seat Recall and Easy Exit functions unless these options are enabled in vehicle personalization using the radio/HVAC controls.

Refer to Instruments and Controls/Vehicle Personalization in the Owner’s Manual for the following memory personalization options:

- Auto Memory Recall
- Easy Exit Options

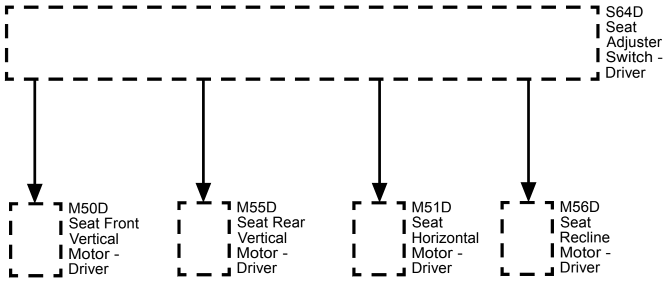
The radio/HVAC controls reports the auto memory recall option settings to the seat memory control module via serial data message. The module will then store the memory recall option setting and examine it before making a memory seat adjustment. The auto memory recall option setting stored within the module will not change until the auto memory recall option setting in vehicle personalization is changed.

## Power Seats System Description and Operation

The driver and passenger power seat systems each consist of the following components:

- Seat adjuster switch
- Seat horizontal motor
- Seat front vertical motor (If Equipped)
- Seat rear vertical motor
- Seat recline motor

### Power Seat Block Diagram


S64D Seat Adjuster Switch - Driver
M50D Seat Front Vertical Motor - Driver
M55D Seat Rear Vertical Motor - Driver
M51D Seat Horizontal Motor - Driver
M56D Seat Recline Motor - Driver

### Seat Motors

The seat switches provide both power and ground to the selected seat motors.

All of the seat motors operate independently of each other. Each motor contains an electronic circuit breaker (PTC) that opens in the event of a circuit overload and will reset only after voltage has been removed from the circuit. There are four seat position motors and two lumbar motors. These are the horizontal motor, front vertical motor, rear vertical motor, and the seat back recline motor. The seat horizontal motor moves the entire seat forward and rearward. The seat vertical motors may operate independently to tilt the front or rear of the seat cushion up or down. Both motors can also run simultaneously to move the entire seat up or down. The recline motor moves the angle of the seat back forward or rearward.

### Seat Operation

All seat motors are reversible. For example, when the seat horizontal forward switch is pressed to move the entire seat forward, battery voltage is applied through the switch contacts and the seat horizontal motor forward control circuit to the motor. With the horizontal motor rearward switch contacts closed to the switch ground circuit, the motor runs in order to drive the entire seat forward until the switch is released. Moving the entire seat rearward works similarly to moving the entire seat forward, except that battery voltage and ground are applied on opposite circuits causing the motor to run in the opposite direction. All seat motors are powered this way.

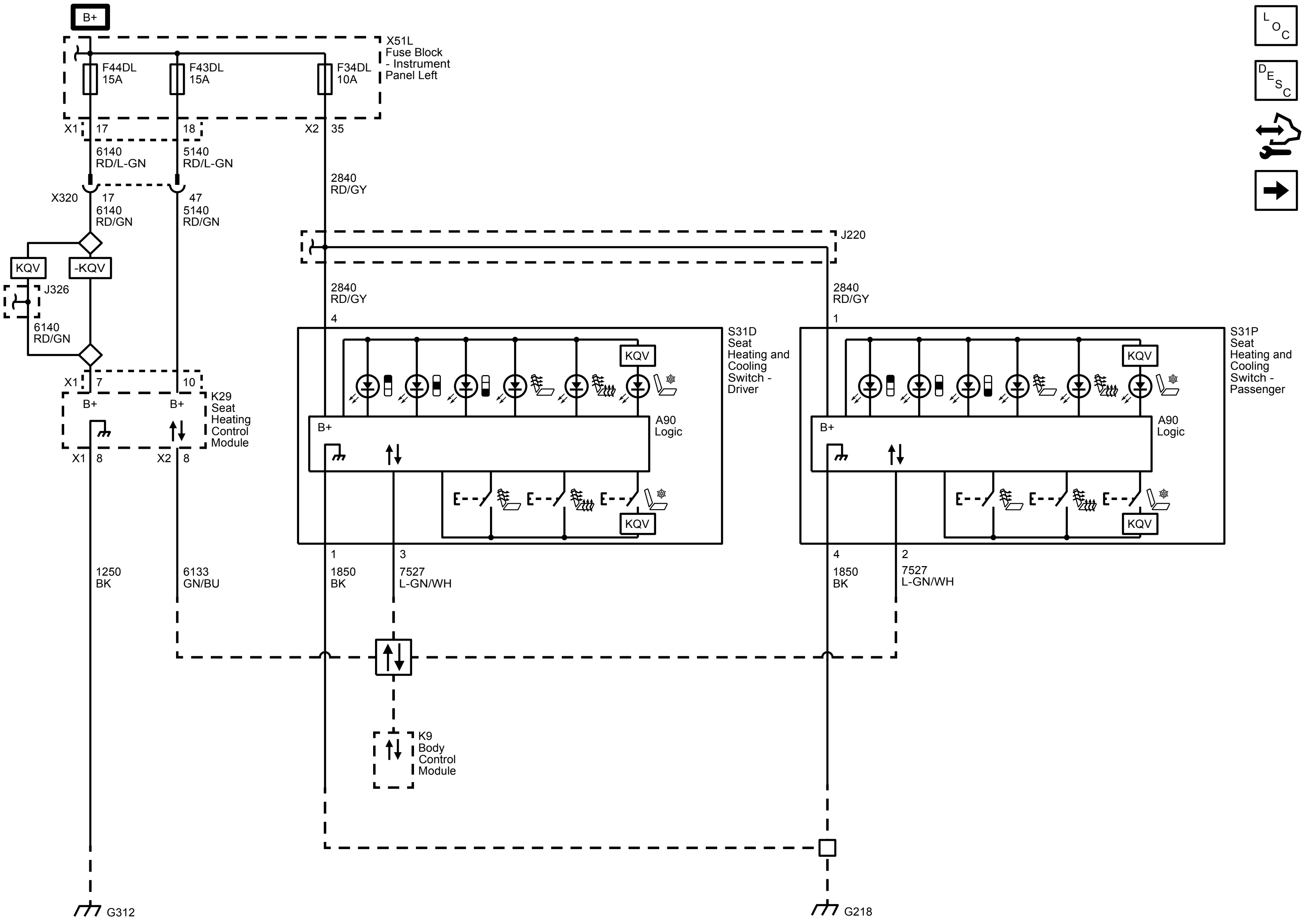
# Seats

## Seat Heating and Cooling

### Schematic and Routing Diagrams

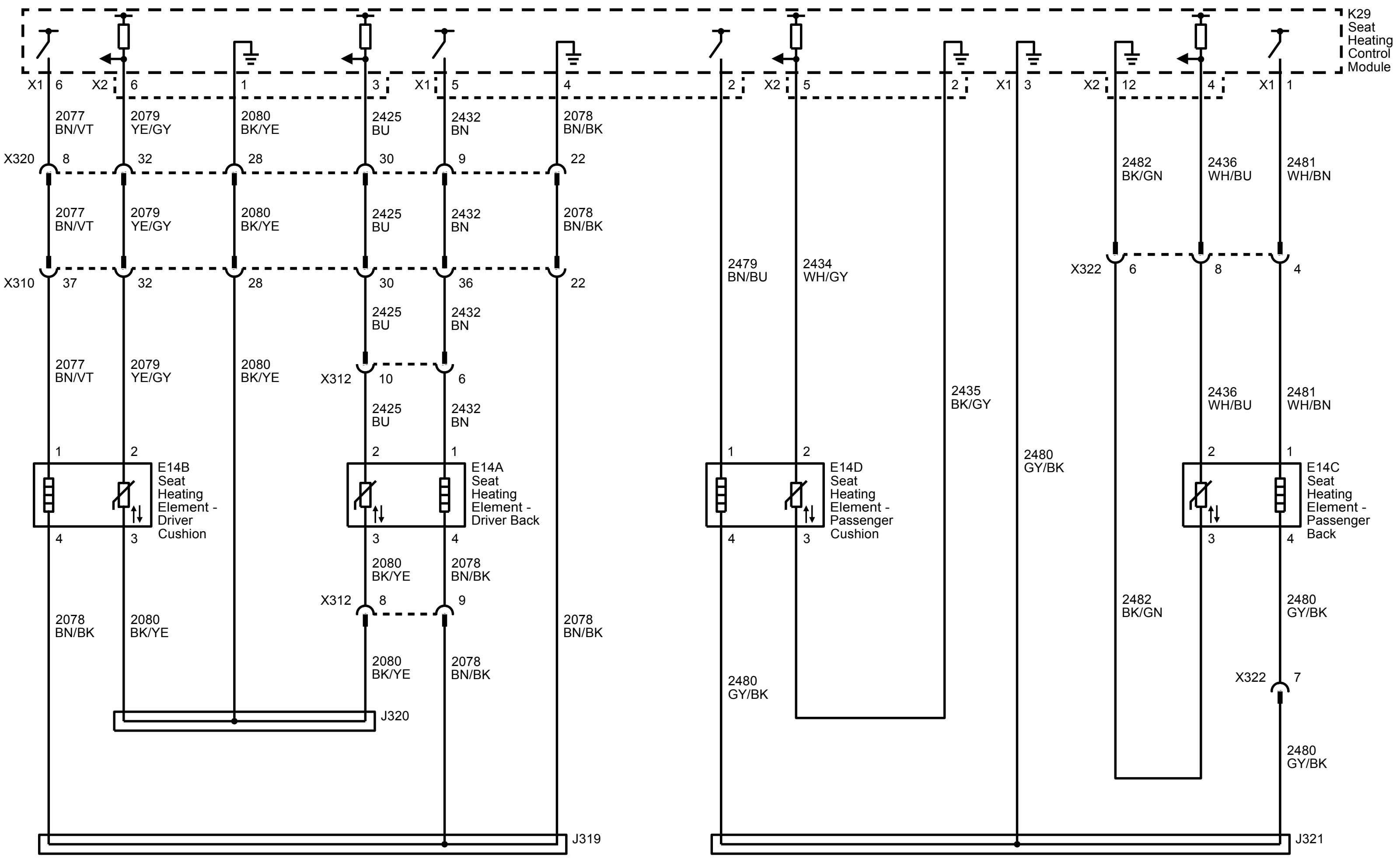
#### Heated/Cooled Seat Schematics

**Power, Ground, Serial Data and Switches (KA1)**

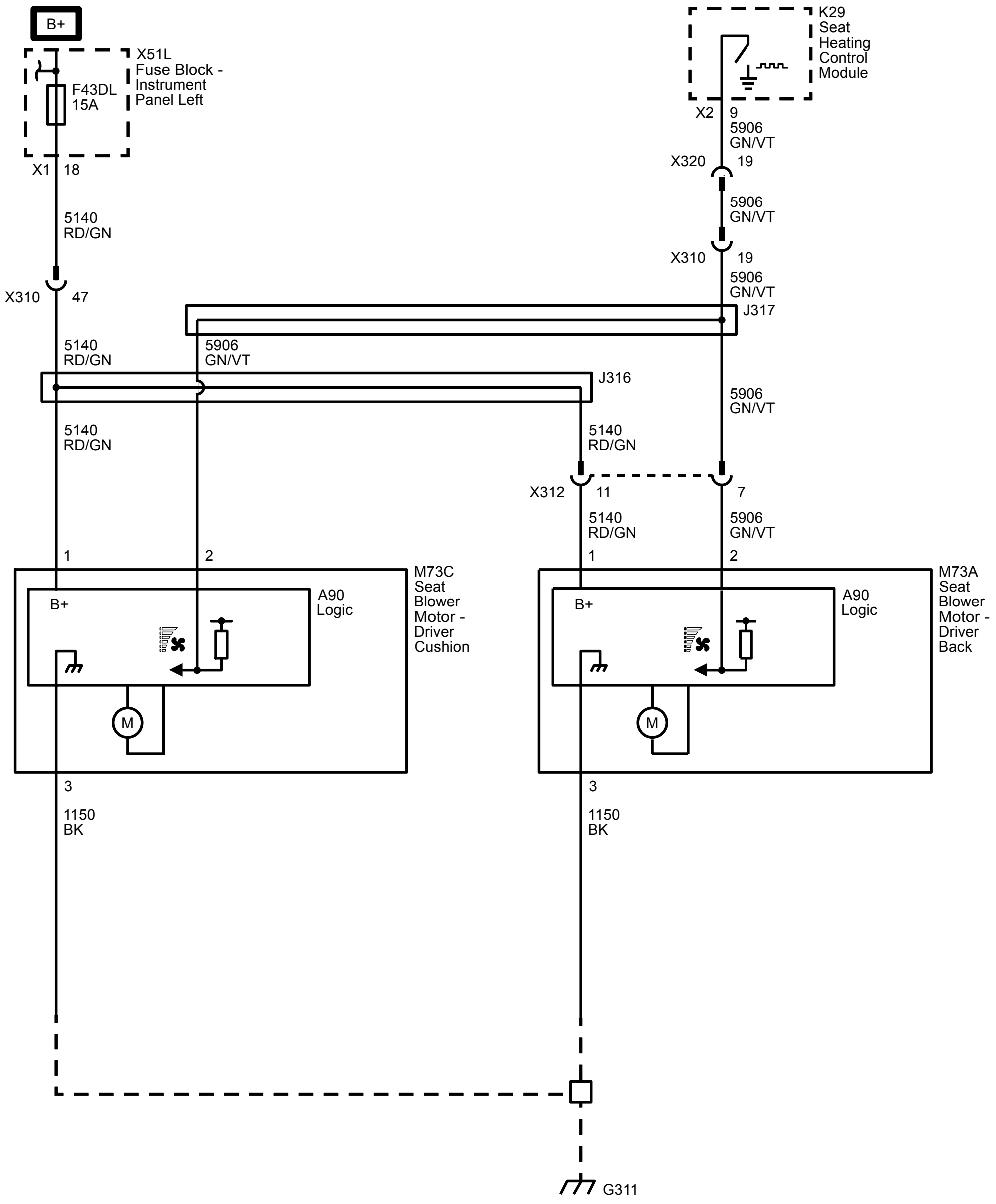


B+
X51L
Fuse Block
- Instrument
Panel Left
F44DL
15A
F43DL
15A
F34DL
10A
X1
17
18
X2
35
6140
RD/L-GN
5140
RD/L-GN
2840
RD/GY
X320
17
6140
RD/GN
47
5140
RD/GN
KQV
-KQV
J326
6140
RD/GN
J220
2840
RD/GY
4
2840
RD/GY
1
X1
7
10
B+
B+
K29
Seat
Heating
Control
Module
X1
8
X2
8
S31D
Seat
Heating and
Cooling
Switch -
Driver
KQV
B+
A90
Logic
KQV
S31P
Seat
Heating and
Cooling
Switch -
Passenger
KQV
B+
A90
Logic
KQV
1250
BK
6133
GN/BU
1
1850
BK
3
7527
L-GN/WH
4
1850
BK
2
7527
L-GN/WH
K9
Body
Control
Module
G312
G218

## Heating Elements (KA1)

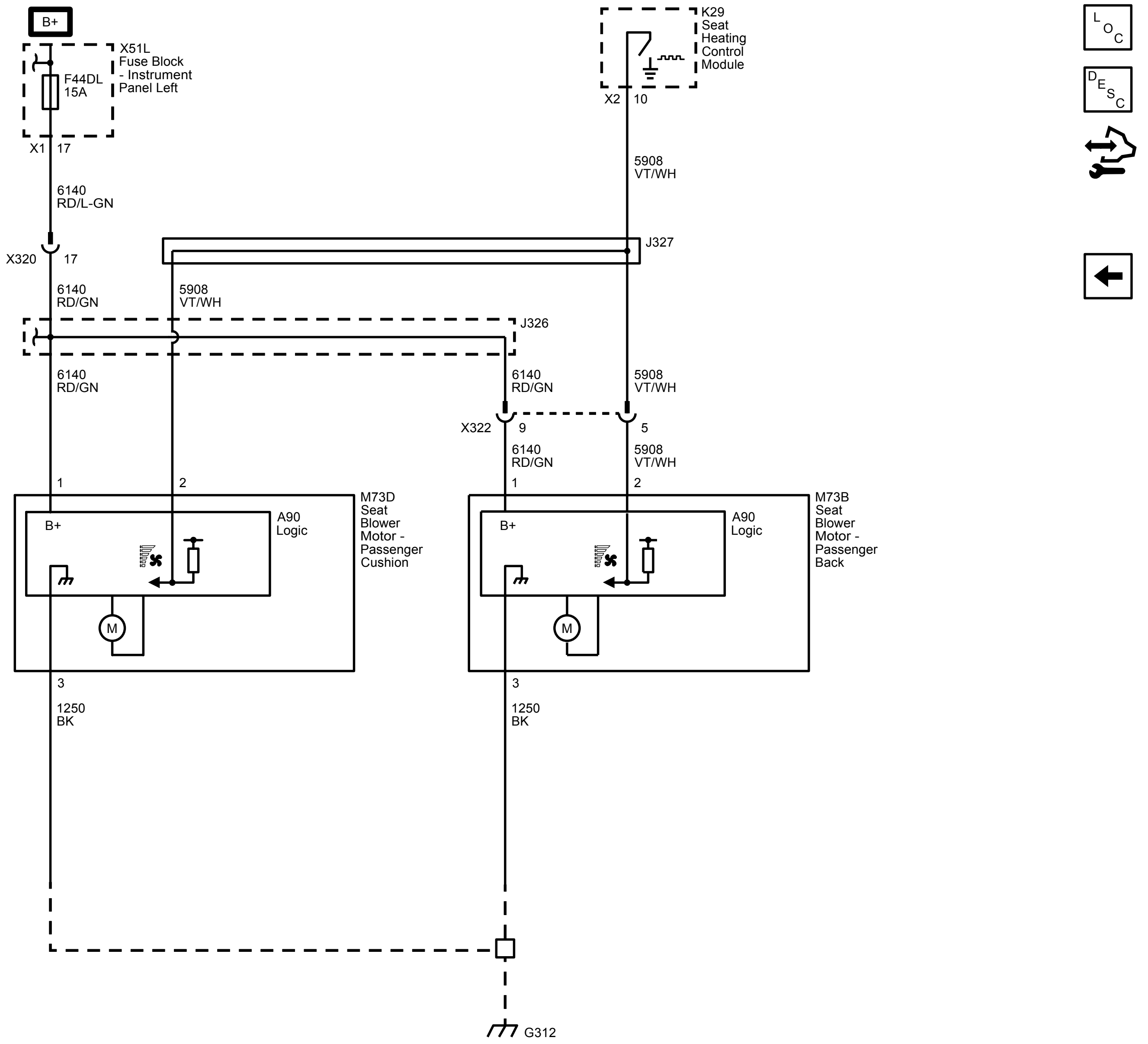

K29 Seat Heating Control Module
X1 6
X2 6
1
3
X1 5
4
2
X2 5
2
X1 3
X2 12
4
X1 1
2077 BN/VT
2079 YE/GY
2080 BK/YE
2425 BU
2432 BN
2078 BN/BK
X320 8
32
28
30
9
22
X310 37
32
28
30
36
22
X312 10
6
2479 BN/BU
2434 WH/GY
2435 BK/GY
2480 GY/BK
2482 BK/GN
2436 WH/BU
2481 WH/BN
X322 6
8
4
E14B Seat Heating Element - Driver Cushion
E14A Seat Heating Element - Driver Back
E14D Seat Heating Element - Passenger Cushion
E14C Seat Heating Element - Passenger Back
X312 8
9
J320
X322 7
J319
J321

## Driver Seat (KQV)


B+
X51L
Fuse Block -
Instrument
Panel Left
F43DL
15A
X1
18
5140
RD/GN
X310
47
5140
RD/GN
5906
GN/VT
J316
5140
RD/GN
K29
Seat
Heating
Control
Module
X2
9
5906
GN/VT
X320
19
5906
GN/VT
X310
19
5906
GN/VT
J317
5906
GN/VT
5140
RD/GN
X312
11
7
5140
RD/GN
5906
GN/VT
1
2
M73C
Seat
Blower
Motor -
Driver
Cushion
A90
Logic
B+
M
3
1150
BK
1
2
M73A
Seat
Blower
Motor -
Driver
Back
A90
Logic
B+
M
3
1150
BK
G311

LOC
DESC

# Passenger Seat (KQV)


B+
X51L
Fuse Block
- Instrument
Panel Left
F44DL
15A
X1 17
6140
RD/L-GN
X320 17
6140
RD/GN
5908
VT/WH
K29
Seat
Heating
Control
Module
X2 10
5908
VT/WH
J327
J326
6140
RD/GN
5908
VT/WH
X322 9
5
6140
RD/GN
5908
VT/WH
1
2
M73D
Seat
Blower
Motor -
Passenger
Cushion
A90
Logic
B+
M
3
1250
BK
1
2
M73B
Seat
Blower
Motor -
Passenger
Back
A90
Logic
B+
M
3
1250
BK
G312
LOC
DESC

# Description and Operation

## Heated/Vented Seat Description and Operation

### Heated/Vented Seat Components

The heated/vented seat system consists of the following components:

- Heated and vented seat switches
- Body control module
- Seat heating control module
- Driver seat cushion heating element
- Driver seat cushion temperature sensor
- Driver seat back heating element
- Driver seat back temperature sensor
- Driver seat temperature control module
- Driver seat cushion blower motor
- Driver seat back blower motor
- Passenger seat cushion heating element
- Passenger seat cushion temperature sensor
- Passenger seat back heating element
- Passenger seat back temperature sensor
- Passenger seat temperature control module
- Passenger seat cushion blower motor
- Passenger seat back blower motor

### Heated/Vented Seat Switches

The driver and passenger heated and vented seats are controlled by separate heated/vented seat switches located on the center stack near the HVAC controls. To operate the engine must be running. The BCM is the heated and vented seat system master. It monitors heated/vented seat switch activations to determine user requested operating mode. Based on the requested operating mode, the BCM sends a LIN Bus serial data message to the Seat Heating Control Module how to drive the self-regulated heating pads or ventilation motors. The BCM also controls the indicators used to provide the operator with feedback as to the operating status of the system. With each press of the switch, the system will cycle through High, Medium, Low, and then back to Off again. The BCM also controls the seat temperature and mode indicators, via the serial data line, used to provide the operator with feedback as to the operating status of the system.

### Heated Seat Operation

The seat heating control module controls heated seat operation for the driver and passenger seats. There are two modes for heated seat operation; seat back and cushion heat mode and seat back only heat mode. When active, power is applied to the seat cushion and back heater elements through individual pulse width modulated (PWM) voltage supply control circuits. Each individual heater element is switched to ground by the module through a common low side drive control circuit.

When inactive the seat heating control module connects the heating element low side outputs to a common reference point internal to the module which is biased to approximately 3.5 V. The module uses this biased voltage in order to check the high side and low side control circuits for a short to battery or ground before enabling the driver and passenger seat heating elements. During heated seat operation, the seat heating control module interrupts control of the heating elements every 10 s for approximately 10 ms to make this biased voltage check.

With both the seat cushion and seat back heater elements disconnected, if the high side output of the module is measured it will display a low current 12 V bleed off voltage. This bleed off voltage does not have a meaningful diagnostic purpose. With the heater element connected you would just see the 3.5 V biased voltage from this circuit.

### Temperature Regulation

The seat back and cushion temperature sensors (thermistors) are packaged with the seat heating elements located just under the seat covers. The seat heating control module supplies each temperature sensor with a 5 V reference signal circuit and a low reference circuit. The module monitors the voltage from the signal circuit to determine the temperature of the seat.

The temperature sensor varies in resistance based on the temperature of the heating element causing the signal voltage to change. Once the module senses the seat reached the set temperature, it will then begin regulate the current flow through the heater elements in order to maintain the desired seat temperature based on the feedback voltage from the sensor.

If the heated seats are on high, the temperature level may automatically be lowered after approximately 30 min of operation.

### Vented Seat Operation

Each vented seat system consists of 2 blower motors; one in the seat back and one in the seat cushion. During vented seat operation, the vented seat blower motors move cabin air through channels in the foam pad and small holes in the seat covers causing a cooling effect to the occupant.

Battery voltage is supplied to the blower motors through a 15 A fuse located in the left instrument panel fuse block. Ground for each blower motor is provided through separate ground circuits and a common ground connection.

When the seat heating control module receives a ventilation seat command, it sends a low side drive pulse width modulation (PWM) signal through the blower motor control circuit to each blower motor indicating the seat ventilation command. The logic in the blower motors interprets this signal then sets the blower speed to the switch set point. The blower motors run causing a cooling effect to the occupant.

### Heated and Vented Seat Operation During Remote Start

Refer to Vehicle Personalization in the Owner’s Manual for Remote Start Auto Heated and Ventilation Seats.

During remote start, the heated seats will turn ON when the ambient temperature is below 10° C (50° F).

During remote start, the seat ventilation system will turn ON when the ambient temperature is above 27° C (80° F).

## Load Shed Management

The electrical power management function is designed to monitor the vehicle electrical load and determine when the battery is potentially in a high discharge condition. The heated seat system is one of the vehicle loads that is subject to reduction during a battery discharge condition. For more information on load management refer to Electrical Power Management Description and Operation (Gasoline)Electrical Power Management Description and Operation (Diesel).

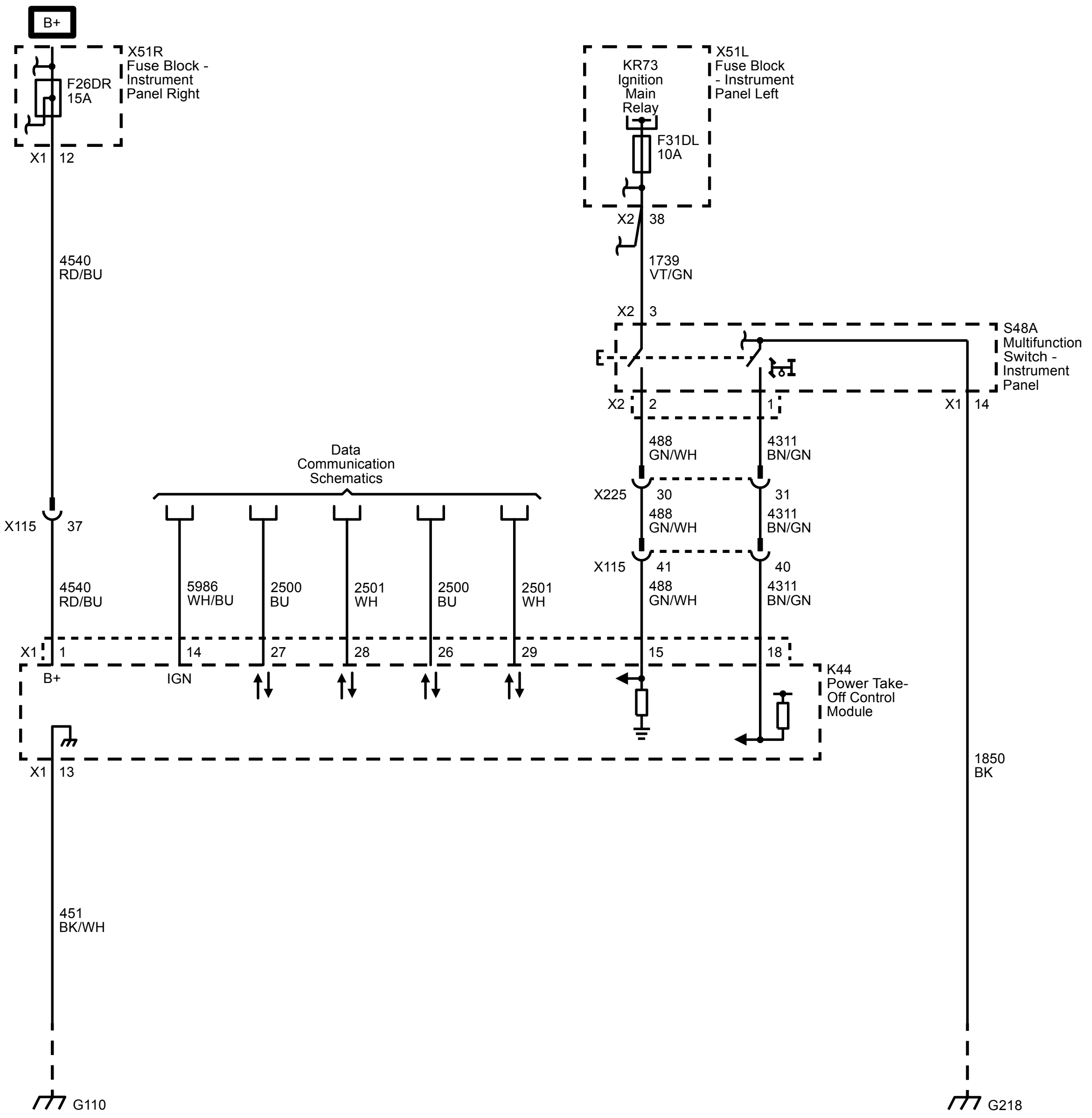
# Transmission

## Power Take-Off

### Schematic and Routing Diagrams

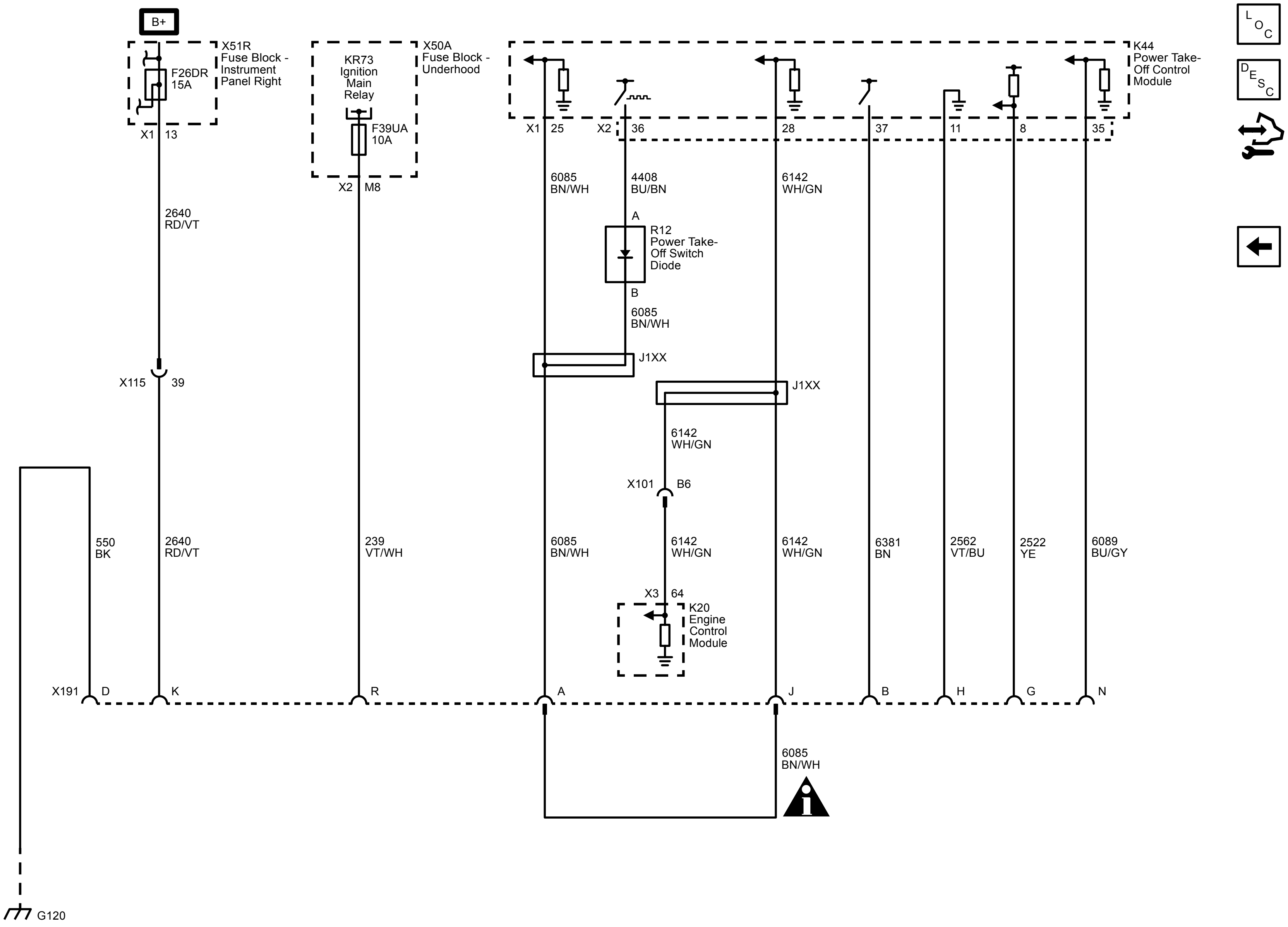
### Power Take-Off (PTO) Schematics

### Power, Ground, Serial Data and Enable



B+
X51R
Fuse Block - Instrument Panel Right
F26DR 15A
X1 12
4540 RD/BU
X115 37
4540 RD/BU
X1 1
B+
X1 13
451 BK/WH
G110
KR73 Ignition Main Relay
X51L
Fuse Block - Instrument Panel Left
F31DL 10A
X2 38
1739 VT/GN
X2 3
S48A Multifunction Switch - Instrument Panel
X2 2
1
X1 14
488 GN/WH
4311 BN/GN
X225 30
31
488 GN/WH
4311 BN/GN
X115 41
40
488 GN/WH
4311 BN/GN
Data Communication Schematics
5986 WH/BU
2500 BU
2501 WH
2500 BU
2501 WH
14
27
28
26
29
15
18
IGN
K44 Power Take-Off Control Module
1850 BK
G218

**Provisional Connector**


B+
X51R
Fuse Block -
Instrument
Panel Right
F26DR
15A
X1
13
2640
RD/VT
X115
39
KR73
Ignition
Main
Relay
X50A
Fuse Block -
Underhood
F39UA
10A
X2
M8
K44
Power Take-
Off Control
Module
X1
25
X2
36
28
37
11
8
35
6085
BN/WH
4408
BU/BN
A
R12
Power Take-
Off Switch
Diode
B
6085
BN/WH
J1XX
J1XX
6142
WH/GN
6142
WH/GN
X101
B6
550
BK
2640
RD/VT
239
VT/WH
6085
BN/WH
6142
WH/GN
6142
WH/GN
6381
BN
2562
VT/BU
2522
YE
6089
BU/GY
X3
64
K20
Engine
Control
Module
X191
D
K
R
A
J
B
H
G
N
6085
BN/WH
G120
L O C
D E S C

# Description and Operation

## Power Take-Off (PTO) Description and Operation

The power take-off (PTO) is an upfitter integrated system that allows the user to create an auxiliary power source. The PTO system specifically controls engine speed to values higher than normal base idle, PTO load relay engagement, and remote starting and shutdown of the engine. When the operator requests PTO, the PTO switch will be turned ON and the engine RPM will go to a default standby speed.

The PTO system utilizes the following:

- The transmission driven PTO gear
- The in-cab PTO switch and cruise control SET – and RES + switches
- The PTO telltale indicator
- The power take off module (PTOM)
- The remote PTO upfitter connector

### Factory Installed PTO Components

### The in-cab PTO switch and cruise control SET – and RES + switches

The PTO switch is a part of the switch bank and is mounted in the right side of the center instrument panel. The PTO switch is a two position momentary switch with two states: ON/OFF. When the PTO switch is pressed and released to the ON position, the PTO relay will be energized by the PTOM. The cruise control SET – and RES + switches are used to control PTO desired speed. Note that the cruise control ON/OFF switch shall be set to OFF for PTO to operate.

### PTO Telltale Indicator

The PTO telltale indicator is a part of the DIC message center. The PTOM shall command the state of the PTO telltale via instrument panel displays based on the following criteria:

- The telltale will illuminate, flashing at a 0.5 second interval rate when the PTO relay is energized. The indicator illuminates solid once the PTO load feedback signal confirms the load has been engaged or after 2 seconds if load feedback is not utilized by the PTO system.
- The telltale will flash at a 1 second interval rate when PTO memory speed is retained. Depressing the in-cab PTO switch to the OFF position turns the PTO system off. The PTO telltale will turn off once engine speed reaches base engine idle, at which time the PTO relay is de-energized.

### Power Take-Off Module (PTOM)

- Processes PTO operator switch inputs and translates these inputs into an engine speed request to the ECM
- Controls the engagement of the PTO load relay
- Process requests to the BCM and ECM to start and shutdown the engine
- Requests the IPC to display on the DIC the actions the driver must take to enable PTO
- Requests the ECM to command an engine shutdown and engine shutdown horn warning for critical engine and transition conditions (stationary remote PTO only).

The PTOM constantly looks at the information from various sensors and other inputs, and controls the systems that affect vehicle performance. If any of the PTO engage conditions for the specific operating mode are no longer valid, the engine controller will exit out of PTO mode.

### Remote PTO Upfitter Connector

The PTO upfitter connector provides access to all remote PTO functions. The connector is located on the right-hand outside frame rail, underneath the passenger side door. Electrical connections to the following components are provided by this connector. The upfitter connector pin circuits (other than battery, ignition and ground) are disabled as the vehicle is received from the factory. The PTO module must be reprogrammed by the upfitter or dealer to enable the following circuits:

- PTO remote engine arm
- PTO remote engine shutdown/start
- PTO remote set/variable speed potentiometer
- PTO lead feedback

### Other Vehicle Modules

The PTO system also utilizes the following vehicle modules, which communicate over the serial data system:

- The body control module (BCM)
- The engine control module (ECM)
- The instrument panel cluster (IPC)
- The transmission control module (TCM)
- The electronic brake control module (EBCM)

### Body Control Module (BCM)

The BCM maintains the PTO factory default mode, unless it is reprogrammed with a scan tool to change the PTO configuration mode. The BCM also controls the remote start/shutdown function.

### Engine Control Module (ECM)

The ECM controls the engine speed and the engine starting based on messages from the PTOM through serial data. The ECM also provides PTO specific engine information to the PTOM through serial data messages.

### Electronic Brake Control Module

The EBCM monitors the vehicle speed. The PTOM receives the status of the vehicle speed from the EBCM via serial data messages.

### Instrument Panel Cluster (IPC)

The driver information center (DIC) of the IPC displays actions the driver must take in order to engage PTO. If the PTO will not engage, one or more of the following DIC messages may appear on the instrument panel cluster (IPC):

| Stationary PTO | Mobile PTO |
|---|---|
| PTO: REDUCE VEHICLE SPEED | PTO: DISENGAGE CRUISE CONTROL |
| PTO: RELEASE BRAKE | PTO: REDUCE ENGINE SPEED |
| PTO: SET PARK BRAKE | PTO: RELEASE BRAKE |
| PTO: REDUCE ENGINE SPEED | PTO: PRESS and RELEASE BRAKE |
| PTO: SHIFT TO P OR N | PTO: REDUCE VEHICLE SPEED |
| PTO: DISENGAGE CRUISE CONTROL | — |

### Transmission Control Module (TCM)

The TCM adjusts shift patterns to minimize shifting during PTO operation. The TCM also provides transmission gear states and temperature conditions to the PTOM via serial data messages.

### Electronic Brake Control Module (EBCM)

The EBCM disables the PTO if wheel speed pulses are larger than calibratable values. The EBCM also disengages the PTO during a traction control event.

## PTO Enable Conditions

### Stationary PTO

The following conditions must be met in order to engage stationary PTO:

- The engine must be running.
- The vehicle cannot be moving and the parking brake must be set.
- The shift lever must be in PARK (P) or NEUTRAL (N).
- The brake pedal must not be pressed.
- Cruise control must be OFF.

In-cab PTO operation: Press and release the in–cab PTO switch to the ON position. The PTO telltale indicator will flash fast until the PTO load becomes engaged. When the load becomes engaged, the telltale indicator will stop flashing and stay illuminated. The cruise control SET – and RES + switch positions can then be used to establish the desired PTO operating speed.

Remote PTO operation: Press and release the PTO remote arm switch, then within five seconds, press and release the PTO remote engine start/shutdown switch. The remote PTO indicator light will illuminate when the PTO load is engaged. The PTO remote SET or PTO remote variable speed switches can then be used to establish the desired PTO operating speed. These switches are accessed through the PTO upfitter connector, located under the passenger side door.

### Mobile PTO

The following conditions must be met prior to engaging mobile PTO:

- The engine must be running.
- The vehicle speed must be less than the PTO top vehicle speed limit. The default setting is 94 km/h (58 mph). This limit can be adjusted.
- The shift lever must be in M1, M2 or M3.
- The brake must be pressed and then released. The brake must then remain released.
- Cruise control must be OFF.
- Engine speed must be less than the maximum allowed PTO engage speed of 1500 RPM.

Press and release the PTO in-cab switch to the ON position. The PTO telltale will flash fast until the PTO load becomes engaged. When the load becomes engaged, the telltale will stop flashing and stay illuminated. The SET –

and RES + switches can then be used to establish the desired PTO operating speed.

## PTO Disengage Conditions

### Stationary PTO

The stationary PTO mode will disengage if any of the following conditions are detected by the vehicle modules:

- Vehicle movement
- The park brake is released
- The transmission is shifted from PARK (P) to DRIVE (D) or REVERSE (R).
- The PTO load becomes disengaged
- A press and release of the PTO in–cab switch to the OFF position.
- A press and release of the PTO remote engine start/shutdown switch (stationary remote PTO only).
- A press and release of the PTO E-STOP switch (stationary remote PTO only).

### Mobile PTO

The mobile PTO mode will also disengage if the following conditions are detected by the vehicle modules:

- A press of the brake pedal
- Vehicle speed exceeds 94 km/h (58 mph)
- Engine speed exceeds the maximum allowed PTO operating speed of 2100 RPM
- The PTO load becomes disengaged
- A press and release of the PTO in–cab switch to the OFF position

The PTO control system will attempt to limit accelerator pedal and PTO switch input as the vehicle approaches the above operational limits. There are some vehicle conditions, such as down hill acceleration, which may cause vehicle speed or engine speed limits to be exceeded. Under those conditions, PTO is disengaged.

## Modes of Operation

### Preset PTO Mode

Preset PTO can only be used when the vehicle is not moving. The engine speed is initially set to a standby engine speed of 900 RPM. This provides an initial start-up engine speed to match the engagement of the PTO load. The PTO standby engine speed can be reprogrammed to higher speeds.

Choose one of two presets by pressing and releasing the cruise control SET – /RES + or PTO remote set switches:

- Speed 1: Pressing the cruise control SET — or PTO Remote Set 1 switch results in a preset speed of 1200 RPM.
- Speed 2: Pressing the cruise control RES + or PTO Remote Set 2 switch results in a preset speed of 1900 RPM

Pressing and releasing the PTO in-cab switch or PTO remote engine start/shutdown switch to the OFF position results in the return of the engine speed back to normal idle. The PTO load relay is also disengaged.

Maximum PTO Operating Speed: To protect the PTO from overspeed, the PTO system will disengage when the engine speed exceeds 3100 RPM.

The Stationary PTO Mode provides both in-cab and remote controls. The in-cab controls are enabled as the factory preset. The remote controls are disabled. This factory preset configuration can be reprogrammed to enable the remote controls, and disable the in-cab PTO controls.

**Note: DO NOT enable/activate PTO during service (hoist) conditions at any time**

### Variable PTO Mode

In this mode, the vehicle can be programmed for stationary or mobile operation.

The variable PTO mode controls engine speed and PTO load engagement and is selected by either the PTO in-cab or remote switches. Engine speed selection is variable between base engine idle speed and a maximum of 3100 RPM.

In the mobile PTO mode, the vehicle will operate at a vehicle speed resulting from the current PTO engine speed request and current transmission gear range selected.

Vehicle speed stability is greatly improved by shifting into the transmission manual mode because upshifts are limited. This reduces the maximum vehicle speed while allowing high engine speed operation. Therefore, low vehicle speed operation, 16–40 km/h (10–25 mph) and high PTO engine speed 1500–2000 RPM can be achieved in the manual mode 1 and 2 transmission ranges.

### In-cab PTO Switch Operation:

- ON: Press and release the PTO in-cab switch to the ON position to engage PTO. The PTOM will increase the engine speed to the factory preset engine speed. The initial standby speed can be adjusted by holding the accelerator to the desired engine speed, then pressing and releasing the ON switch. The current engine speed will become the new standby speed. This adjustment can only be done once at the initial engagement of the PTO, and the initial standby speed adjustment must be between the engine base idle speed and the maximum PTO engine speed.
- OFF: Press and release the PTO in-cab switch to the OFF position to disengage PTO. The engine speed will return to the base idle speed and the PTO load relay will be disengaged.

### Cruise Control SET– and RES+ Switch Operation:

- SET —: Press and hold the accelerator to obtain the desired engine speed, then press and release the SET – switch. The current engine speed will be maintained. This action can be repeated as desired to a higher RPM value. The PTO set speed cannot exceed 3100 RPM.
  - Tap Down: Press and release the SET – switch to reduce the engine speed by increments of 100 RPM.

  - Coast: Press and hold the SET – switch to reduce the RPM by 150 RPM per second until the desired engine speed is reached or until the initial PTO standby speed is reached.
- RES +: When a PTO set speed has been achieved, press and release the brake pedal. Engine speed will return to normal idle speed. The PTO telltale will flash slowly indicating the previous PTO set speed has been retained in memory. Press and release the RES + to resume the previous PTO set speed. The PTO set speed cannot exceed 3100 RPM.
  - Tap Up: Press and release the RES + to increase the engine speed by increments of 100 RPM.
  - Accelerate: Press and hold the RES + to increase the RPM by 150 RPM per second until the desired engine speed is reached or until the maximum allowable PTO set speed is reached.

| PTO State | Applied Switch | Short Apply | Long Apply |
|---|---|---|---|
| PTO STANDBY ENABLED | RES + | Tap Up (Engaged) | Accelerate (Engaged) |
| PTO STANDBY ENABLED | SET − | Engaged | Engaged |
| PTO ENGAGED (RPM already higher than standby) | SET – | Tap Down | Coast |
| PTO ENGAGED (RPM already lower than maximum speed) | RES + | Tap Up | Accelerate |
| STANDBY DISABLED with no memory speed | RES + | No Action | No Action |
| STANDBY DISABLED with a memory speed | RES + | Resume | Resume |
| STANDBY ENABLED with no memory speed | RES + | Tap Up (Engaged) | Resume |
| STANDBY ENABLED with a memory speed | RES + | Resume | Resume |

### Remote Engine Start Control

The PTO system allows the engine to be remotely started while operating in the stationary PTO mode. The wiring system provides for connections to a remote engine start arming switch and remote start/shutdownn switch. These connections are accessed through the upfitter connector.

The remote start function is initiated by a sequence of switch actions, in addition to several vehicle conditions. The following conditions must be met before attempting to remote start the engine. The vehicle ignition key can be in any position or removed from the ignition:

- The vehicle must be configured for stationary PTO operation.
- The parking brake must be set.
- The transmission must be in PARK (P).
- The hood must be closed.

Once the above conditions are met, to continue with the remote start, use the remote PTO controls to do the following:

1. Press and release the PTO remote arm switch.
2. Within five seconds of releasing the PTO remote arm switch, press and release the PTO remote engine start/shutdown switch until the engine starts.

The PTO system will then elevate engine RPM to standby speed and engage the PTO load. Use the PTO remote set or PTO remote variable speed switches (based on configuration) to elevate PTO speed to the desired engine operating speed.

### Remote Engine Shutdown Control

The PTO system allows for remote engine shutdown while operating in the stationary PTO mode. This feature has the following functions:

- Engine shutdown using the operator remote switch: The vehicle wiring system provides remote engine shutdown switch connections, which can be accessed through the PTO upfitter connector.
- Timed auto-engine shutdown: The timed auto-engine shutdown feature provides the means to shut down the engine automatically after a predefined time. PTO must be operational for this function to be active.
- Engine shutdown based on critical engine conditions: The engine can be shutdown when PTO is operating if a critical engine condition is detected by the vehicle system (i.e., low oil, low oil pressure, hot engine, hot transmission, low fuel).
- Emergency engine shutdown: The vehicle wiring system supports remote Emergency engine shutdown via application of the E-STOP switch located at the external (upfitter's) panel accessible through the PTO upfitter connector. (e.g. when PTO relay is stuck closed in Stationary Remote mode, operator shall activate E—STOP switch to shutdown engine and allow engine to be restarted at the next ignition cycle without PTO system activation.

### PTO Factory Default Settings

## *Power Take-Off (PTO) Description and Operation*

| Function | Value/Default Setting | Scan Tool/HMI Customization Menu |
|---|---|---|

| | | |
|---|---|---|
| PTO Option | None<br>Preset (Default)<br>Variable<br>Mobile | Scan Tool |
| PTO In-Cab Control | Enabled<br>Disabled | Scan Tool |
| PTO Remote Control Status | Enabled<br>Disabled (Default) | Scan Tool |
| PTO Ramp Rate | 4 – 150 RPM/sec | Scan Tool |
| PTO Set 1 Speed | 500 – 3100 RPM<br>1200 RPM (default) | HMI Customization Display/Scan Tool |
| PTO Set 2 Speed | 500 – 3100 RPM<br>1900 RPM (default) | HMI Customization Display/Scan Tool |
| PTO Relay | Yes (default)<br>No | Scan Tool |
| PTO Feedback | Yes (default)<br>No | Scan Tool |
| Fuel Level for Engine Shutdown | 0 – 25% fuel level<br>15% fuel level | Scan Tool |
| PTO to Set 1 Speed | Yes<br>No (default) | Scan Tool |
| PTO Remote Engine Start | Yes<br>No (default) | Scan Tool |
| PTO Remote Set Switch | Yes<br>No (default) | Scan Tool |
| PTO Remote Set Switch Type | Momentary (default)<br>Latching | Scan Tool |
| PTO Remote Engine Shutdown | Yes<br>No (default) | Scan Tool |
| Remote Set Switch Low = (less than 33% of Ignition voltage) | PTO Standby<br>Set 1 (default)<br>Set 2 | Scan Tool |
| Remote Set Switch High + (33% to 66% of Ignition voltage) | PTO Standby<br>Set 1<br>Set 2 (default) | Scan Tool |
| Remote Set Switch Open = (greater than 66% ignition voltage) | PTO Standby<br>Set 1 (default)<br>Set 2 | Scan Tool |
| PTO Maximum Engage Speed | 0 – 1500 RPM<br>1500 RPM (default) | Scan Tool |

| | | |
|---|---|---|
| PTO Maximum Engine Speed | 500 — 3100 RPM<br>2100 RPM (default) | Scan Tool |
| PTO Standby Speed | 500 — 1500 RPM<br>900 RPM (default) | HMI Customization Display/Scan Tool |
| Engine Run Timer | 0 — 1320 minutes | HMI Customization Display/Scan Tool |
| Chirp Before Start | Enabled (default)<br>Disabled | Scan Tool |
| PTO Tap Step | 4 – 500 RPM/Step<br>100 RPM/Step (default) | HMI Customization Display/Scan Tool |
| Brake Release Action | Standby<br>Idle Speed (default) | Scan Tool |
| Remote PTO Variable Speed Switch | Yes<br>No (default) | Scan Tool |
| PTO ON During Braking | Yes (default)<br>No | Scan Tool |
| Maximum Vehicle Speed | 30 kph (19 mph) to 94 kph (58 mph)<br>94 kph ((58 mph) (default) | Scan Tool |
| PTO Minimum Remote Variable Speed | 0 – 50%<br>2% (default) | Scan Tool |
| PTO Maximum Remote Variable Speed | 50 – 100%<br>95% (default) | Scan Tool |
| Engine Shutdown Enable | Yes<br>No (default) | Scan Tool |
| PTO Accelerator Lockout | Enabled<br>Disabled (default) | Scan Tool |

## Reprogramming the PTOM for Fast Idle/PTO Using the Scan Tool

A scan tool must be used to enable certain PTO options and also to adjust the factory preset parameters to the desired settings.

For additional scan tool information, refer to CELL Link Error - Link target cell (cell ID 72864) is invalid for this publication..

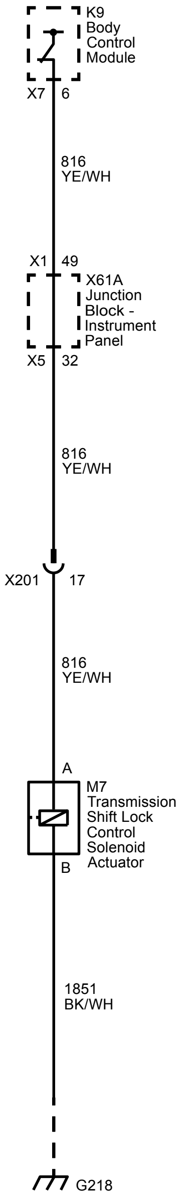
# Transmission

## Shift Lock Control

### Schematic and Routing Diagrams

### Shift Lock Control Schematics

**Shift Lock Control (M5U, MW7, MYC or MYD)**


K9
Body
Control
Module
X7
6
816
YE/WH
X1
49
X61A
Junction
Block -
Instrument
Panel
X5
32
816
YE/WH
X201
17
816
YE/WH
A
M7
Transmission
Shift Lock
Control
Solenoid
Actuator
B
1851
BK/WH
G218

# Description and Operation

## Automatic Transmission Shift Lock Control Description and Operation (Without T4Z)

The Automatic Transmission Shift Lock Control System is a safety device that prevents an inadvertent shift out of PARK when the engine is running. The driver must press the brake pedal before moving the shift lever out of the PARK position. The system consists of the following components:

- The Automatic Transmission Shift Lock Solenoid (serviced as the Automatic Transmission Shift Lock Actuator)
- The Body Control Module (BCM)
- The Engine Control Module (ECM)

The BCM controls the voltage to the shift lock control solenoid though the shift lock control solenoid controlled voltage circuit. The following conditions must be met before the BCM will supply voltage to the shift lock control solenoid:

- The ignition is in the ON position.
- The ECM sends an input via GMLAN serial data to the BCM when the Transmission Control Module (TCM) indicates the transmission is in the PARK position.
- The BCM receives a brake applied input from the stop lamp switch.

Since the shift lock control solenoid is permanently grounded, the BCM supplies voltage to the automatic transmission shift lock control solenoid, releasing the mechanical lock on the shift lever as the solenoid energizes. The energized solenoid allows the driver to move the shift lever out of the PARK position. When the brake pedal is not applied, the BCM turns the control voltage output of the shift lock control solenoid OFF, de-energizing the shift lock control solenoid. When the transmission is in the PARK position, the de-energized shift lock control solenoid will prevent shifting as the lever is mechanically locked in the PARK position.

During remote start operation the BCM will de-energize the automatic transmission shift lock control circuit, locking the shift lever in the PARK position

## Automatic Transmission Shift Lock Control Description and Operation (With T4Z)

The Automatic Transmission Shift Lock Control System is a safety device that prevents an inadvertent shift out of PARK when the engine is running. Vehicles equipped with the Safety Belt Assurance System (RPO T4Z), the driver must press the brake pedal and have the driver and if present, the front outboard passenger safety belt(s) buckled before moving the park lever out of the PARK position. The system consists of the following components:

- The Automatic Transmission Shift Lock Solenoid (serviced as the Automatic Transmission Shift Lock Actuator)
- The Body Control Module (BCM)
- The Engine Control Module (ECM)
- The Inflatable Restraint Sensing and Diagnostic Module (SDM).

The BCM controls the voltage to the shift lock control solenoid though the shift lock control solenoid controlled voltage circuit. The following conditions must be met before the BCM will supply voltage to the shift lock control solenoid:

- The ignition is in the ON position.
- The ECM sends an input via GMLAN serial data to the BCM when the Transmission Control Module (TCM) indicates the transmission is in the PARK position.
- The BCM receives a brake applied input from the stop lamp switch.
- The SDM determines if the occupied driver and front outboard passenger, if present, have their safety belt(s) buckled.

Since the shift lock control solenoid is permanently grounded, the BCM supplies voltage to the automatic transmission shift lock control solenoid, releasing the mechanical lock on the shift lever as the solenoid energizes. The energized solenoid allows the driver to move the shift lever out of the PARK position. When the brake pedal is not applied, the BCM turns the control voltage output of the shift lock control solenoid OFF, de-energizing the shift lock control solenoid. When the transmission is in the PARK position, the de-energized shift lock control solenoid will prevent shifting as the lever is mechanically locked in the PARK position.

During remote start operation, the BCM will energize the shift lock control circuit, locking the shift lever in the PARK position.

Vehicles with the Safety Belt Assurance System, will display the following message “Shift Locked, Buckle Seatbelt” if the driver or front outboard passenger, if present, and safety belt(s) are not buckled. The vehicle will not shift out of PARK. Buckle the safety belt(s) to unlock the shifter.

This system may not allow the vehicle to shift out of PARK if an object such as a briefcase, handbag, grocery bag, laptop, or other electronic devices is on the front outboard passenger seat. If this happens, remove the object from the seat or buckle the safety belt.

Vehicles with the Safety Belt Assurance System, will display the following message “Shift Unlocked, Brake To Shift” if the system times out and allows the vehicle to be shifted out of PARK after 30 s following brake applied.

The Safety Belt Assurance System can be disabled with a calibration file update in the K36 Inflatable Restraint Sensing and Diagnostic Module using SPS. This procedure should only be done to help resolve a customer dissatisfaction issue.